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SEPTEMBER 1987

ICHTHYOPLANKTON AND STATION DATA FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS SURVEY CRUISES IN 1953

Elizabeth G. Stevens Richard L. Charter H. Geoffrey Moser Morgan S. Busby

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Elizabeth G. Stevens Richard L. Charter H. Geoffrey Moser Morgan S. Busby

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U.S. DEPARTMENT OF COMMERCE
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ABSTRACT

This report provides ichthyoplankton and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises conducted off California and Baja California in 1953. It is the third report in a series that presents these data for all biological-oceanographic CalCOFI surveys from 1951 to the present. A total of 1429 stations occupied during 12 monthly multivessel cruises over the quartersquare mile survey area which extends from the California-Oregon border to Cape San Lucas, Mexico and seaward to several hundred miles. The data are listed in a series of 6 tables; the background, methodology, and information necessary for interpretation and quantitative analysis of the data are presented in an accompanying text. All pertinent station and tow data, including volumes of water strained and standard haul factors are listed in the first table. Another key table lists, by station and month, standardized counts of each of the 108 larval fish categories identified from survey samples. This and previous and subsequent reports make the CalCOFI ichthyoplankton and station data available to all investigators and serve as guides to the newly developed computer data base.

INTRODUCTION

This report, the third of a series, provides ichthyoplankton and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) joint biologicaloceanographic survey cruises conducted in 1953. This program was initiated in 1949, under the sponsorship of the Marine Research Committee of the State of California, to study the population fluctuations of the Pacific sardine (Sardinops sagax) and the environmental factors that may play a role in such fluctuations. CalCOFI, known as the California Cooperative Sardine Research Program from 1949 to 1953, was made up of representatives of the South Pacific Fisheries Investigations (SPFI) of the U.S. Fish and Wildlife Service [now the La Jolla Laboratory, National Marine Fisheries Service (NMFS)], the Scripps Institution of Oceanography (SIO), the California Department of Fish and Game (CDFG), the California Academy of Sciences (CAS) and the Hopkins Marine Station of Stanford University. The first three of these agencies supplied ships and personnel to conduct the sea surveys. NMFS processed the plankton samples and analyzed the ichthyoplankton from them. processed and analyzed the hydrographic samples and measurements and also analyzed invertebrate groups from the plankton samples.

The boundaries, station placement, and sampling frequency for the CalCOFI survey area were based on the results of joint biological and oceanographic cruises conducted by NMFS and SIO during 1939-41. Those cruises were designed to collect sardine eggs and larvae and associated hydrographic data over the entire areal and seasonal spawning range of the species. On these survey cruises, plankton tows were made to 70 m, a depth which

encompassed the vertical distribution of sardine eggs and larvae. Wide-ranging joint biological and oceanographic survey cruises were resumed in 1949 with sardine as the focus; however, an increasing interest in other biological components resulted in the deepening of standard tows to 140 m in 1951. This marked the beginning of truly quantitative ichthyoplankton sampling on CalCOFI surveys.

Data resulting from CalCOFI surveys in 1953 have been published in a number of forms. Hydrographic data (Reid et al., 1965), zooplankton volumes (Staff, SPFI, 1954; Thrailkill, 1956; Smith, 1971) and ichthyoplankton data for selected species Smith, (Ahlstrom and Kramer, 1955) were presented in standard formats. The latter lists counts for eggs and larvae of sardine and for larvae of northern anchovy (Engraulis mordax), jack mackerel (Trachurus symmetricus), Pacific mackerel (Scomber japonicus), Pacific hake (Merluccius productus), and rockfishes (Sebastes Also, length frequencies are listed for larvae sardine, anchovy, jack mackerel, and Pacific Distribution maps of larvae of 5 of these taxa taken on CalCOFI surveys during 1953 are presented in the CalCOFI Atlas series 1968; Ahlstrom, 1969; Kramer, 1970; (Kramer and Ahlstrom, Ahlstrom et al., 1978).

A computer data base for eggs and larvae of sardine anchovy and for larvae of hake, and the two mackerels established in 1969. The development of a data base for other fish larvae is a complex undertaking because competency identification has evolved steadily over the past 38 years. began the task of producing a CalCOFI ichthyoplankton data base and associated data report series in 1983. All original records for 1953 were subjected to an extensive verification and editing process to produce this report. and previous (Ambrose et al., 1987; Sandknop et al., 1987) and subsequent reports make the CalCOFI ichthyoplankton and station data available to all investigators and serve as guides to the computer data base. The data base will be modified additional errors are discovered and when composite taxa from the years are reidentified. These reports are fundamental reference documents against which subsequent changes in the data base can be compared.

SAMPLING AREA AND PATTERN

In 1953, CalCOFI survey cruises were conducted at monthly intervals. A total of 1429 stations included in this data base was occupied on 12 cruises, with an average of 119 stations per cruise (range of 19-211). Coverage of the survey station pattern varied among cruises and the entire quarter-million square mile survey area was not covered on any single cruise (Figures 1-13; Table 1). The area off northern California (lines 40-57) was not covered in 1953. Off central California (lines 60-77) stations were occupied monthly, from April through August. The area between Pt. Conception, California and Pt.

San Juanico, Baja California (lines 80-137) was surveyed monthly, except for September and November. Cruise 5310 began on line 82.3 and Cruise 5312 began on line 81.8 but on both cruises all lines south to line 137 were covered. Cruises 5309 and 5311 were short cruises covering the area south of Pt. Conception and, additionally, the Sebastian Viscaino Bay region on 5311. The area off southern Baja California (lines 140-150) was surveyed only in January. Coverage extended seaward to station 160 on lines 80 and 90 on Cruises 5304 and 5305 (approximately 450-500 miles offshore) but typically did not extend beyond station 90 (approximately 160-250 miles offshore). Coverage of the pattern was heaviest from March through June and diminished during the fall and winter.

Six vessels were employed on these cruises: the Spencer F. Baird, Crest, Horizon, Paolina T, and E. W. Scripps of SIO, and the Yellowfin of CDFG. One to five vessels participated on each cruise. The Crest was used on all cruises except 5311 (Ahlstrom, 1955).

SAMPLING GEAR AND METHODS

The standard CalCOFI net used from 1949 to 1969 had a 1-m diameter mouth opening (0.785 m² area) and an overall length of about 5 m. The net was constructed of 30xxx gauze, a heavy duty grade of silk bolting cloth, with a mesh size of 0.55 mm after shrinkage. The last 40 cm of the cone and the cod end were constructed of 56xxx grit gauze which had a mesh size of 0.25 mm after shrinkage. The net ring was fastened to a short 3-lead bridle connected to several meters of line which attached to the towing cable by a clamp. A current meter was suspended in the center of the net mouth to measure volume of water filtered (see Kramer et al., 1972, for further details).

The standard tow from 1951 through 1968 was an oblique haul to 140 m depth (to 15 m of the bottom in shallow areas) designed to filter a constant amount of water per depth interval (ca.

¹CalCOFI lines (Figure 14) are arranged perpendicular to the coastline and extend from the Canadian border (line 10) to below Cape San Lucas, Baja California (line 157). Stations were established on the basis of a perpendicular to line 80 (off Pt. Conception) at a point designated as station 60. Stations were plotted seaward and shoreward from station 60 on each line. Cardinal CalCOFI lines (those ending in "0") are 120 miles apart and usually bracket two ordinal lines (ending in "3" or "7"), so that lines are 40 miles apart over most of the pattern. Cardinal stations are 40 miles apart and typically these are separated by a station number ending in "5" so that stations are 20 miles apart out to station 90 on most lines. Stations are placed at closer intervals near the coast and islands to accommodate these features (see Kramer et al., 1972 for further details).

 $3m^3/m$ of depth) over the vertical range of most ichthyoplankters. Hauls were made at a ship speed of 1.5-2.0 knots and initiated by clamping the net line to the towing cable with the 45 kg terminal weight about 10-15 m below the surface. The net was lowered to 140 m depth by paying out 200 m of wire over a 4 minute period (35 m of depth/min.). After fishing at depth for 30 seconds, the net was retrieved at 20 m/min. (14 m depth/min.). The angle of stray of the towing cable was recorded every 30 seconds and maintained at 45° ($\pm 3^{\circ}$) by adjusting the ship speed and course. After reaching the surface, the net was washed down and the samples preserved in 5% formalin buffered with sodium borate. Flowmeter readings were made at the beginning and end of each tow. Detailed descriptions of gear and methods are given by Ahlstrom (1953), Kramer et al. (1972), and Smith and Richardson (1977).

LABORATORY PROCEDURES

Laboratory processing began with the determination of a displacement volume for each sample (methods described in Staff, SPFI, 1953 and Kramer et al., 1972). Zooplankton volumes (including ichthyoplankton) of samples collected in 1953 are listed in Staff, SPFI (1954) and presented graphically in Thrailkill (1956) and Smith (1971).

Sorting involved the removal of ichthyoplankton from the sample and identification and separation of eggs and larvae of selected species (see introduction). Usually, each sample was sorted completely; however, some of the samples were fractioned into aliquots using a Folsom plankton splitter (McEwen et al., 1954) prior to sorting. Several criteria were used to determine whether a sample was fractioned: samples containing an abundance of thaliacians and coelenterates and exceeding 150 ml in total plankton volume were fractioned (to 50%, 25%, 12.5%, or 6.25%) to approximate a reduced volume of 50 ml for sorting; samples with excessive quantity of fish eggs and/or larvae occasionally fractioned to expedite the sorting process in order to meet scheduled deadlines. If the identified fraction of an aliquot yielded rare or interesting species of fish larvae, the remaining fraction was frequently sorted and identified with the intent of finding additional specimens. Aliquot percentages for fractioned samples from 1953 are listed in Table 1 under the "Percent Sorted" column; 25% of all samples were fractioned in 1953.

A "standard haul factor" (SHF) was calculated for each tow to make them comparable and allow estimations of areal abundance. This factor adjusts the number of eggs or larvae in a haul to the number in 10 $\rm m^3$ of water strained per meter of depth fished. If the vertical distribution of the species has been encompassed,

²Personal communication, James R. Thrailkill, National Marine Fisheries Service, Southwest Fisheries Center, La Jolla, CA.

then the adjusted value is equivalent to the number under 10 $\,\mathrm{m}^2$ of sea surface. The SHF is calculated for each haul by the formula:

$$SHF = \frac{10 D}{V}$$

- - $V = total \ volume \ of \ water \ (m^3) \ strained \ during the haul$

 $V = R \cdot a \cdot p$

- where R = total number of revolutions of the current meter during the haul
 - $a = area (m^2)$ of the mouth of the net
 - p = length of column of water (m) needed to produce one revolution of the current meter.

Tow depth, volume of water strained, and standard haul factor are listed in Table 1 for each tow taken during 1953. Detailed descriptions of factors involved in calculating these values are presented in Ahlstrom (1948), Kramer et al. (1972), and Smith and Richardson (1977).

IDENTIFICATION

Identification of ichthyoplankton species beyond those separated during the sorting process was carried out by a separate group of specialists. Ontogenetic stages of fishes are inherently difficult to identify and this is further complicated by the large number and diversity of species which contribute to the ichthyoplankton of the California Current region. Most identifications were accomplished by establishing ontogenetic series on the basis of morphology, meristics, and pigmentation and then identifying these series by relating them to known metamorphic, juvenile, or adult stages with overlapping features (Powles and Markle, 1984). A total of 106 taxa was identified for 1953, with 59 taken to species, 22 to genus, 21 to family, and 4 to order. Some of the developmental series recognized originally could not be assigned scientific names, particularly in the Bathylagidae, Myctophidae, and Pleuronectiformes. These were given descriptive names, which later were changed to scientific names as they became known.

The task of producing a reliable and equitable ichthyoplankton data base required extensive procedures to verify, correct, and edit the original identifications. The

primary data source was the original identification sheets Kramer et al., 1972, for examples); however, a critical resource all phases of this process was the ichthyoplankton collection in which the samples are archived. Throughout the course of CalCOFI ichthyoplankton studies, samples have been identified to the lowest taxon possible. In reviewing these identifications for the data base, our approach has been conservative and we have preserved those identifications counts which we could confirm, while correcting as many of errors as possible. During the coding of the identification sheets, the "descriptive types" were assigned scientific names and reexamined, if necessary. After computer entry, taxonomic errors and inconsistencies in the data base were corrected and the most obvious identification errors were corrected. current knowledge of ichthyoplankton techniques coupled with a precise understanding of the development of identification competency in the program over the years allowed us to critically judge the historical records. Identifications were changed to different taxa, lumped to a higher taxonomic category, or given a more precise taxonomic name. In many cases, identifications of a taxon were inconsistent among cruises in a year, because of varying competency of identifiers. These records were made equitable by lumping to the higher taxonomic category to avoid biases that could result in quantitative misinterpretations.

Next, statistical, seasonal, and geographic outliers were identified, employing a series of graphic summaries and listings. Examination of geographic outliers proved to be especially effective because of our accumulated knowledge of species distributions. In the course of examining samples for these outliers, other identification errors were discovered and eventually all taxa were scrutinized to some extent. Lastly, certain taxa were reexamined in all samples for the entire CalCOFI time series. These taxa were selected because of their commercial, ecological, phylogenetic, or zoogeographic importance or because taxonomic confusion was at the ordinal level. The following is a list of the taxa for 1953 which received special attention, with explanations and caveats intended to aid in quantitative interpretations:

- Anguilliformes tentative and sporadic identifications to family or lower taxon lumped to order.
- Sardinops sagax all specimens south of line 120 checked for misidentification of Opisthonema spp.
- Engraulidae includes nearshore taxa (mostly Anchoa spp.) large enough to separate from Engraulis mordax. Some nearshore samples of small E. mordax may contain other anchovy genera, but could not be differentiated.
- Nansenia spp. all specimens checked and identified as N. candida or N. crassa; all specimens of these species near their range boundaries checked.

- Sternoptychidae tentative and sporadic identifications of hatchetfishes to genus were lumped to family.
- Bathophilus spp. all specimens checked.
- Scopelarchidae tentative and sporadic identifications to genus lumped to family.
- Ceratoscopelus townsendi low number probably reflects both inconsistent identification and fewer offshore samples.
- Lampadena urophaos absence of this species may indicate inability to identify it or be a reflection of lower sampling effort after June.
- Lampanyctus spp. tentative and sporadic identifications to species (mostly descriptive types) lumped to genus.
- Stenobrachius leucopsarus specimens at margins of range reexamined.
- Diogenichthys atlanticus all specimens at margins of range checked.
- Diogenichthys laternatus all specimens at margins of range checked.
- Electrona rissoi recognition of this species was inconsistent and others may be included in Protomyctophum crockeri or Myctophidae.
- Hygophum spp. all specimens reidentified to species; residuals
 are small, poorly preserved specimens.
- Protomyctophum crockeri some samples on northern lines may contain P. thompsoni, which was not identified at the time.
- Symbolophorus californiensis all specimens south of line 120 checked for confusion with *Hygophum* spp., stemming from descriptive names.
- Bregmaceros spp. all gadiform types (see Index), except Merluccius productus and Macrouridae, reexamined.
- Ophidiiformes this category did not exist originally and ophidiiform larvae were included in Brosmophysis marginata, Carapidae, "Otophidium", "Zoarcidae", and "blenny"; identifications of B. marginata and Carapidae proved to be mostly correct and "Zoarcidae" to be a yet unidentified ophidiiform species; all "Otophidium" and "blenny" were reexamined and the former included Ophidion scrippsae, Chilara taylori and other ophidiiform taxa (moved to order); "blenny" contained O. scrippsae, C. taylori, and other ophidiiform taxa in addition to true blennioids.

- Chilara taylori larvae of this species were not identified in 1953 and may be in the unidentified fish larva category.
- Ceratioidei identifications of this group were inconsistent and specimens may be in the unidentified fish larva category.
- Trachipteridae tentative and sporadic identifications to genus were lumped to family.
- Melamphaes spp. all identifications ascribed to Melamphaidae were reexamined and assigned to genus (Melamphaes, Poromitra) or species (Scopelogadus bispinosus); larvae originally identified as Melamphaes spp. were not reexamined and this category may contain other melamphaid genera.
- Cottidae some samples may include specimens of Scorpaenichthys marmoratus, hexagrammids (e.g., Oxylebius pictus, Zaniolepis spp.), and some blennioids (e.g., Hypsoblennius spp.).
- Oxylebius pictus not identified originally; these specimens were identified during recent examination of other taxa.
- Zaniolepis spp. not identified originally; these specimens were identified during recent examination of other taxa.
- Sebastes spp. in addition to other scorpaenid genera, this taxon includes *Prionotus* spp., carangids, serranids, scombrids, and other spiny-headed shorefishes, particularly in samples south of line 120.
- Sebastolobus spp. this category is underrepresented and additional specimens may be in Sebastes spp.
- Hypsoblennius spp. some specimens remain in Cottidae.
- Clinidae some specimens remain in Cottidae or unidentified fish larva category.
- Labridae tentative and sporadic identifications to genus were lumped to family.
- Chromis punctipinnis no pomacentrids identified in 1953; may be included in Sebastes spp. or in unidentified fish larva category.
- Apogonidae all specimens checked.
- Carangidae all specimens checked and reassigned.
- Gerreidae larvae of this family and other shorefishes (e.g., Haemulidae, Girella nigricans, Caulolatilus princeps, Mullidae, Priacanthidae) were not identified and may be in the unidentified fish larva category or may be misidentified as Sebastes spp., Cottidae, etc.

- Sciaenidae this family is underrepresented and some specimens may be in the unidentified fish larva category or may have been misidentified as Sebastes spp.
- Serranidae this family is underrepresented and some specimens may have been misidentified as *Sebastes* spp. or may be in the unidentified fish larva category.
- Scombridae all larvae identified to this family or constituent taxa (except Scomber japonicus) were reexamined and reassigned; underrepresentation or absence of these taxa may be attributed to misidentification or they may be in the unidentified fish larva category.
- Nomeidae absence of this family attributed to misidentification or placement in unidentified fish larva category.
- Pleuronectiformes all available specimens of this category (originally called "flatfish") were examined and reidentified; residuals are small, poorly preserved specimens.
- Bothidae all specimens examined and reassigned; most assigned to various paralichthyid genera or to Bothus spp.
- Citharichthys spp. tentative and sporadic identifications to species were lumped to genus, which also includes Etropus spp. and some other flatfish taxa from original misidentifications.
- Paralichthys spp. specimens of this genus were examined and most were assigned to P. californicus or Xystreurys liolepis.
- Syacium ovale all specimens examined (originally called "spinyheaded bothid").
- Xystreurys liolepis originally misidentified as Paralichthys californicus; all specimens reidentified.
- Glyptocephalus zachirus all specimens examined.
- Hypsopsetta guttulata specimens were originally identified as Pleuronichthys spp.
- Microstomus pacificus all specimens examined.
- Pleuronichthys spp. all larvae of this genus and constituent species were examined and assigned to species; residuals are small, poorly preserved specimens.

Psettichthys melanostictus - absence of this species may be explained by misidentification with other flatfish species (e.g., Lyopsetta exilis) which we did not reexamine systematically.

COMPUTER ENTRY AND EDITING

Each taxon on the original identification sheets was given a 3-digit code based on the list of codes in Haight et al. (1979). Taxon codes and counts from these sheets were keypunched by cruise and station, along with pertinent station and tow data and entered into the VAX 11/780 computer at the University of California, San Diego Computing Center. After entries were completed for an entire year, print-out listings of taxa and counts on each station were compared with the original data sheets to eliminate keypunch errors. Next, data in the file were cross-checked with data on an existing file which contained: station and tow data; numbers of eggs of sardine, anchovy, and saury (Cololabis saira); numbers of larvae of sardine, anchovy, hake, jack mackerel, and Pacific mackerel; total number of fish eggs; and total number of fish larvae.

Discrepancies in ichthyoplankton data in these two files were corrected by inspecting original records from the sorting laboratory, the original ichthyoplankton identification sheets, and the samples themselves. Station and tow data discrepancies between the two files were corrected by reviewing ships' logs and deck tow sheets, original records from the sorting laboratory, cruise announcements, publications, header information on the ichthyoplankton identification sheets, and station plots generated for each cruise. Eventually all station and tow data were checked by comparing these sources.

The corrected ichthyoplankton data base was then examined statistically and outliers were found and checked as above. Distributional plots were then prepared for each taxon and these were checked by reviewing the data sources mentioned above and by examining archived specimens. A listing of each taxon by station (Table 4) was produced, which became the primary document for subsequent checks. Misidentifications found in geographic outlier checks and other misidentifications and data problems discovered in the course of examining archived samples resulted in several iterations of Table 4. Finally, totals in Table 4 were checked against annual summaries of incidence and abundance (Tables 2 and 3). Ecological analyses of the data (Moser et al., 1987) were conducted concurrently with editing procedures and provided cross-checks that allowed correction of errors.

SPECIES SUMMARY

Anchovy, *Engraulis mordax*, constituted 31% of all fish larvae collected in 1953, and were more than twice as abundant as the second most numerous species, hake, *Merluccius productus*,

which constituted 13% of the total larvae. These two species ranked second and sixth in number of occurrences. Leuroglossus stilbius, a deepsea smelt, ranked third in abundance and occurrence, comprising 11% of total larvae. Sebastes spp., a composite of many species of rockfish and possibly a few misidentified shore fishes, ranked fourth with 10% of the total larvae, although first in number of occurrences. lanternfish, Stenobrachius leucopsarus, and the sardine, Sardinops sagax, ranked 5th and 6th in numbers of larvae, each with nearly 5% of total larvae, and 8th and 15th in number of occurrences. Triphoturus mexicanus, another lanternfish, ranked 7th in numbers and 4th in occurrences, and the next taxon in larvae number, Citharichthys spp., including larvae of all species of sanddabs, ranked 8th in abundance and 5th in occurrences. Ninth and 10th in both abundance and occurrence were the gonostomatid species, Vinciguerria lucetia, and the jack mackerel, Trachurus symmetricus. The top 10 taxa contributed 89% of all larvae collected in 1953, and consisted of 4 midwater species, 3 pelagic coastal species and 3 demersal coastal species and genera. The remaining 11% is represented by 96 taxa plus the unidentified and disintegrated categories.

EXPLANATION OF TABLES

- Table 1 This table lists by cruise the pertinent station tow data for 1953, the volume of water filtered and standard haul factor for each tow, the percent of sample sorted, and the total numbers of fish eggs larvae. CalCOFI cruises are designated by four digits; the first two indicate the year and the second two the month. Within each cruise the data are listed in order increasing line and station number (southerly and seaward directions); the order of station occupancy is shown on the station charts (Figures 2-13). Stations are designated by two groups of digits; the first indicates the line and decimal fraction and the second set indicates the station on the line. Time is listed as Pacific Standard Time at the start of each tow in 24-hour designation. Methods for determining tow depth, volume of water strained, standard haul factor, and percent sorted were described in the methods section. The values for total fish eggs and larvae represent raw counts (unadjusted for percent sorted or standard haul factor). Ship codes are as follows: SB, Spencer F. Baird; CR, Crest; HO, Horizon; PT, Paolina T; ES, E. W. Scripps; YE, Yellowfin.
- Table 2 This table lists pooled occurrences of all larval fish taxa taken during 1953 in ranked order.
- Table 3 This table lists pooled counts of all larval fish taxa taken during 1953 in ranked order. Numbers are adjusted for percent sorted and standard haul factors.

- Table 4 This table gives numbers of fish larvae for each taxon, listed by station and calendar month in which the tow was taken. Counts are adjusted for percent of sample sorted and standard haul factor. Average values are given for stations occupied more than once during month. Multiple occupancies occurred when a was occupied more than once in a calendar month; in some cases multiple occupancies resulted from separate See Table 1 for station and tow data and cruises. Table 6 for listing of stations with more than one occupancy during a month. In Table 4, the orders are listed in "phylogenetic" sequence modified from Nelson Subtaxa within each order are alphabetically. Page numbers for each taxon are given in the index at the end of the report.
- Table 5 This table is a summary of pooled occurrences of all larval fish taxa taken on CalCOFI surveys from 1951 to 1960. Taxa are listed in the same order as in Table 4.
- Table 6 List of stations which were occupied more than once in one month during 1953.

ACKNOWLEDGMENTS

Elbert Ahlstrom, David Kramer, Robert Counts, and probably others originally identified larvae from CalCOFI cruises of Douglas Hammond and Ronald Whyte coded each larval fish 1953. or type and Rita Ford entered them into the computer. taxon Snow efficiently assisted in all aspects of data editing Cindy Meyer, Larry Zins, and James Ryan provided and retrieval. programming assistance. Dorothy Roll designed the CalCOFI data acquisition system and provided data processing support. Raymond, Roy Allen, and Henry Orr helped with graphics production of the report. Lorraine Prescott and Diane Forsythe prepared the manuscript for printing. Paul Smith determined statistical outliers, provided assistance during geographical outlier checks and offered helpful suggestions throughout the Izadore Barrett, Director of the Southwest Fisheries project. Center and Reuben Lasker, Chief, Coastal Fisheries Resources Division, SWFC, provided the support critical to the completion of the project. James Thrailkill planned CalCOFI surveys and supervised cruises, data handling, and plankton sorting from 1949 to 1986 and is largely responsible for the high quality of these Without the vision and direction of Elbert Ahlstrom operations. and Elton Sette and the dedicated efforts of the many people who collected, processed, and analyzed the samples, this data base would not exist.

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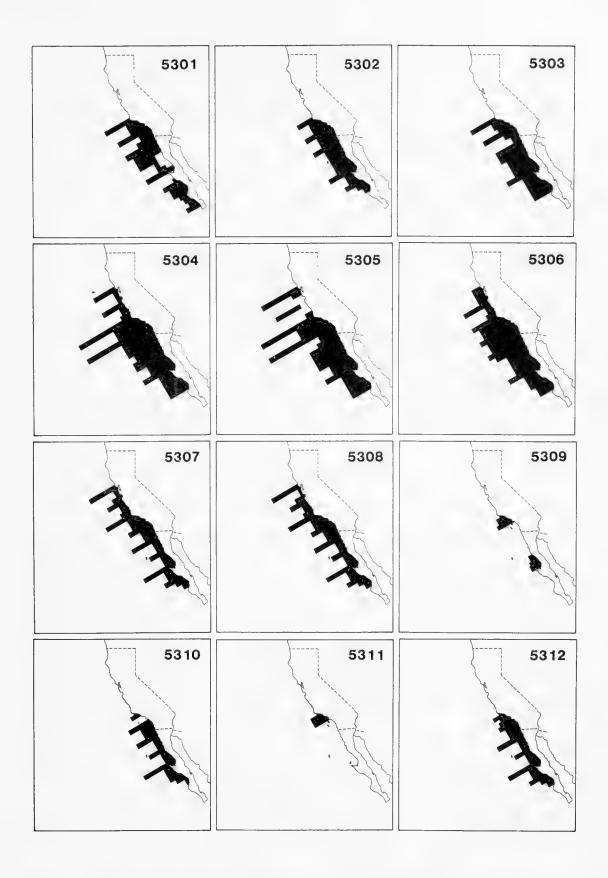


Figure 1. Composite arrangement of diagrammatic charts showing areas sampled on each CalCOFI cruise during 1953.

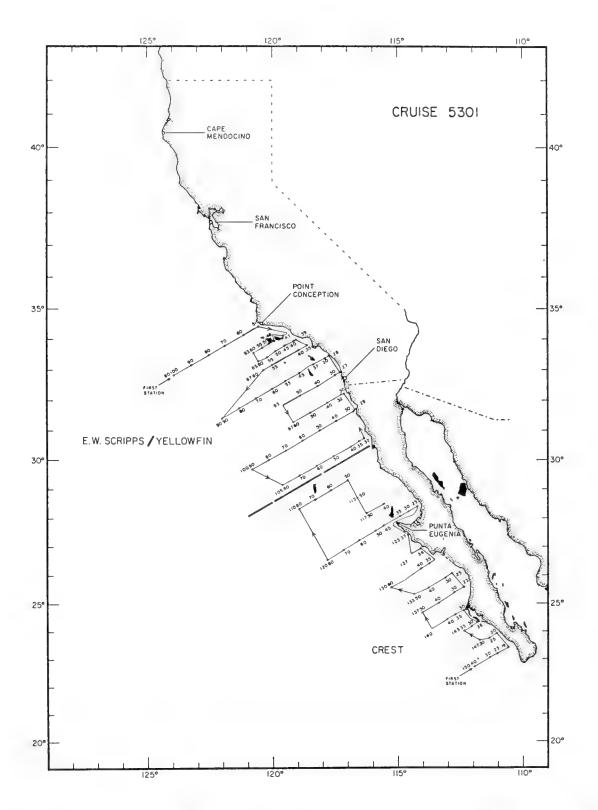


Figure 2. Station pattern for CalCOFI Cruise 5301 showing tracks for each vessel. Stations with plankton tows are indicated by a dot. Modified from charts in Reid et al. (1965) to include only those stations listed in Table 1 of this report.

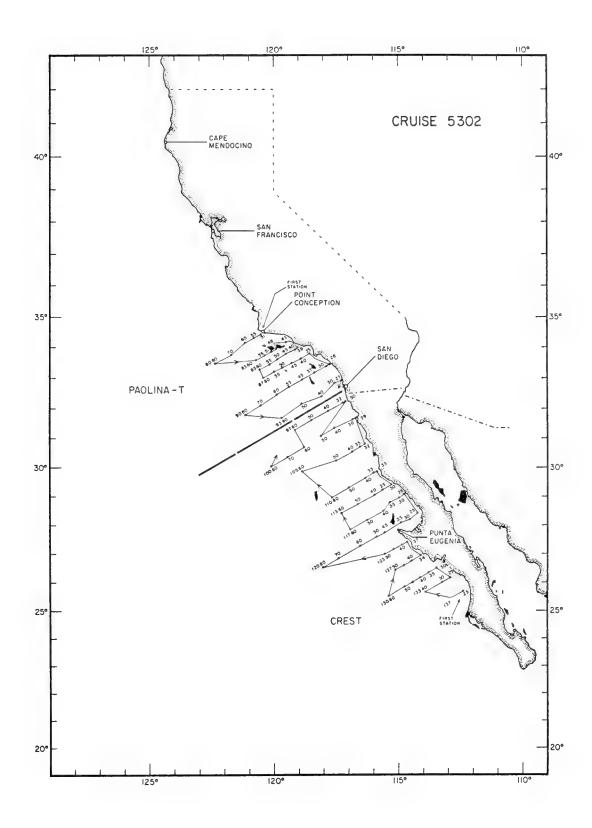


Figure 3. Station pattern for CalCOFI Cruise 5302. Symbols as in Figure 2.

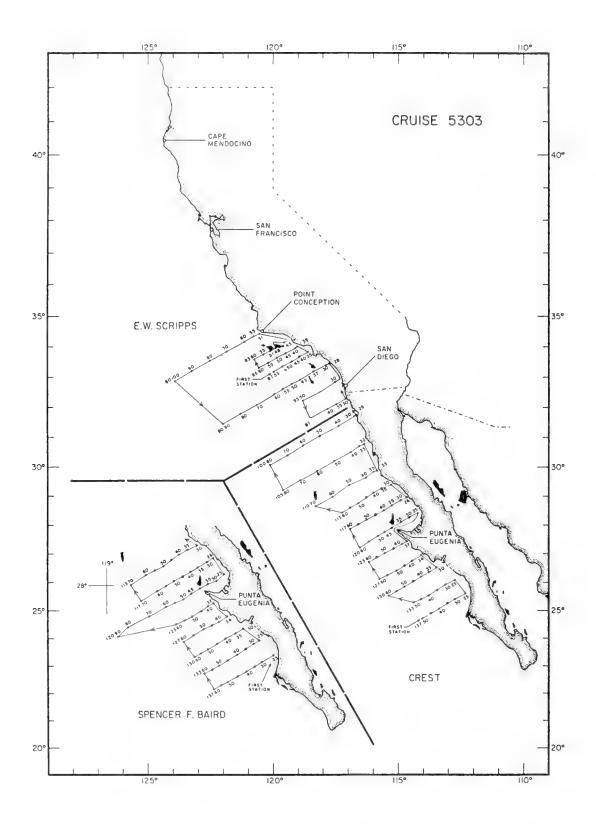


Figure 4. Station pattern for CalCOFI Cruise 5303. Symbols as in Figure 2.

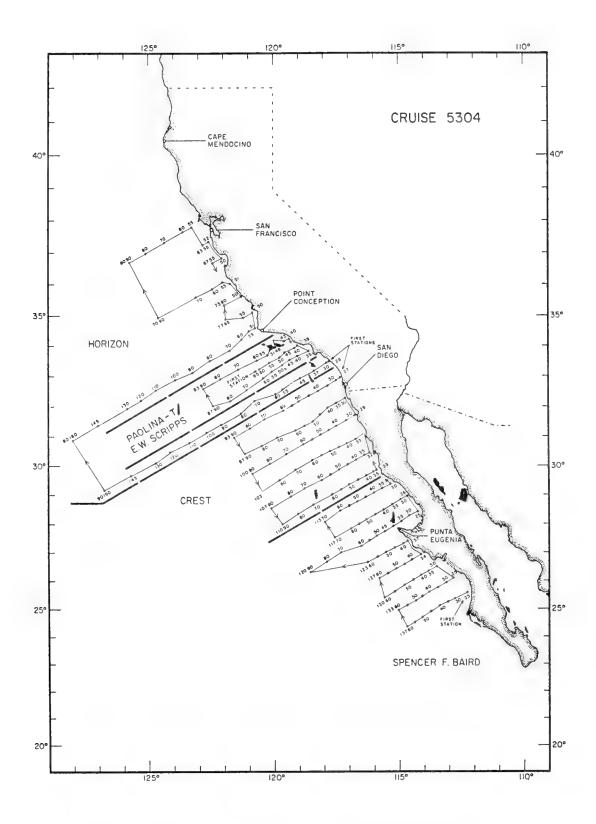


Figure 5. Station pattern for CalCOFI Cruise 5304. Symbols as in Figure 2.

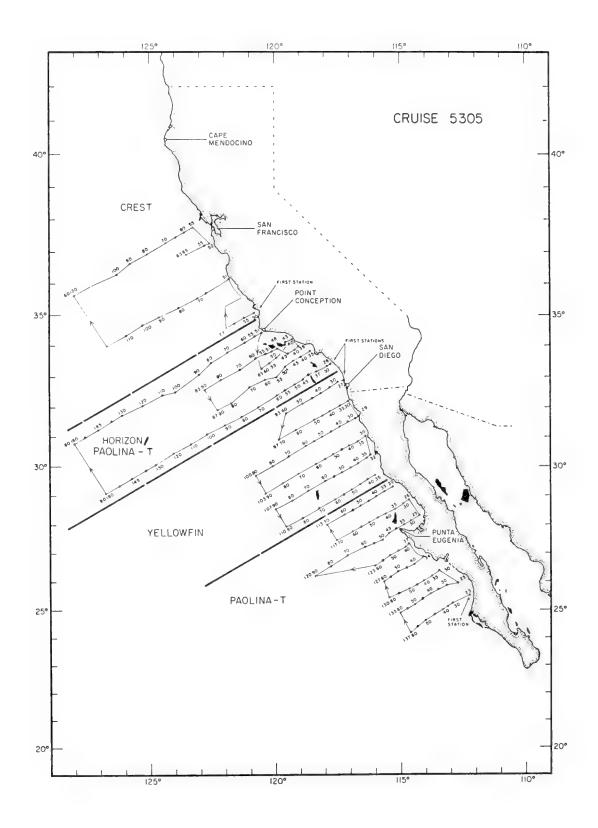


Figure 6. Station pattern for CalCOFI Cruise 5305. Symbols as in Figure 2.

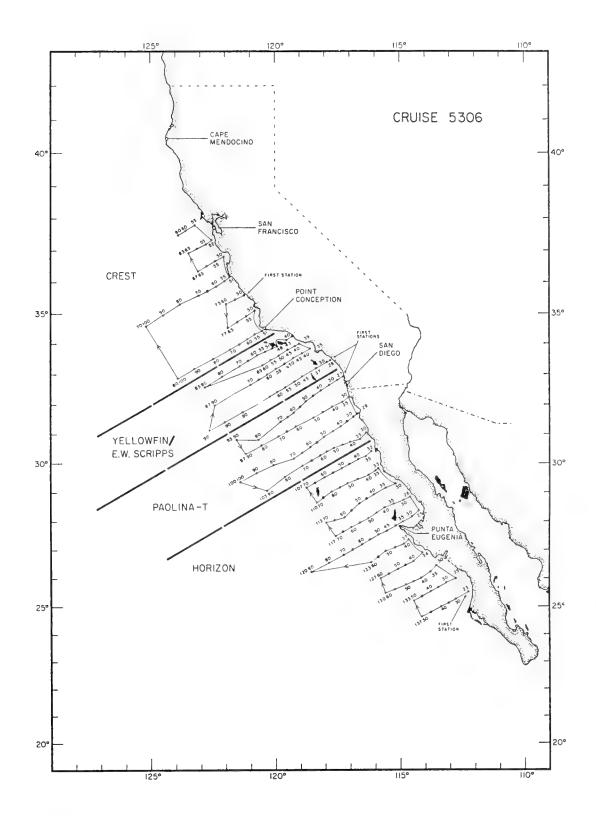


Figure 7. Station pattern for CalCOFI Cruise 5306. Symbols as in Figure 2.

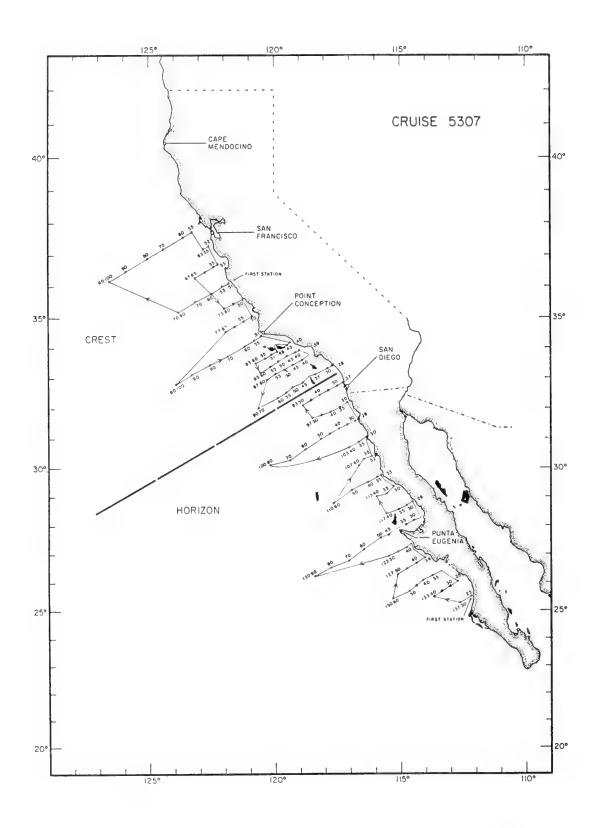


Figure 8. Station pattern for CalCOFI Cruise 5307. Symbols as in Figure 2.

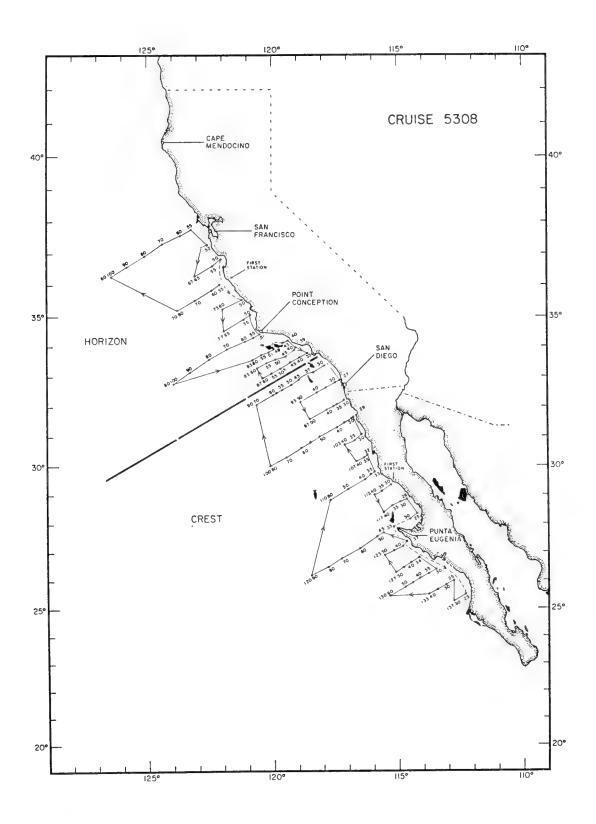


Figure 9. Station pattern for CalCOFI Cruise 5308. Symbols as in Figure 2.

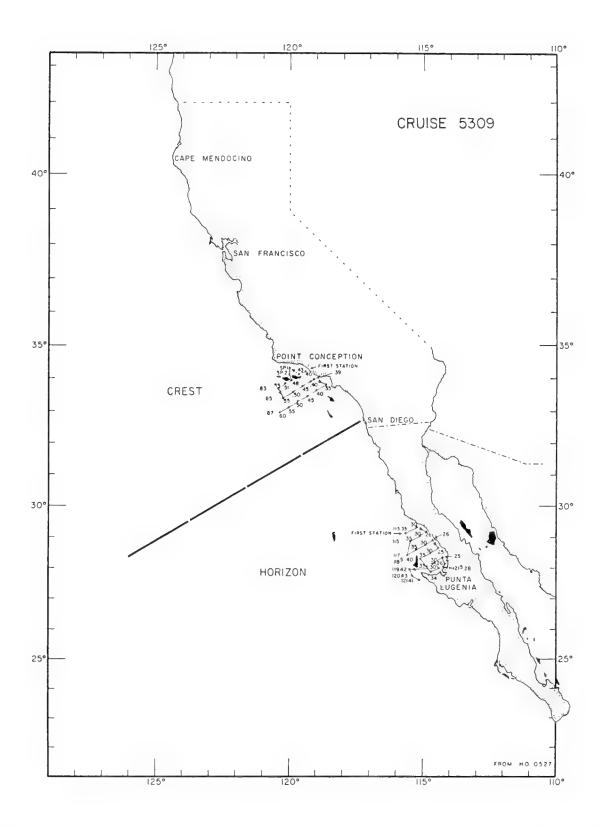


Figure 10. Station pattern for CalCOFI Cruise 5309. Symbols as in Figure 2.

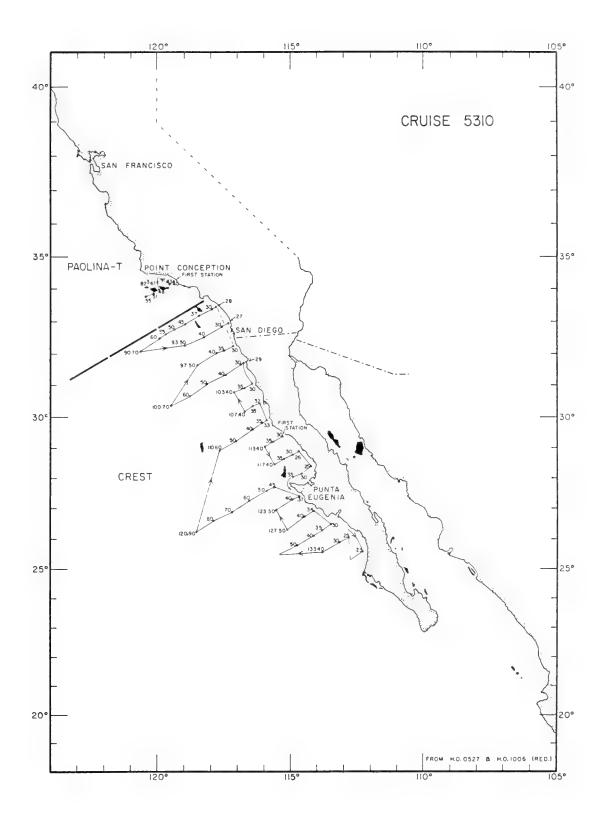


Figure 11. Station pattern for CalCOFI Cruise 5310. Symbols as in Figure 2.

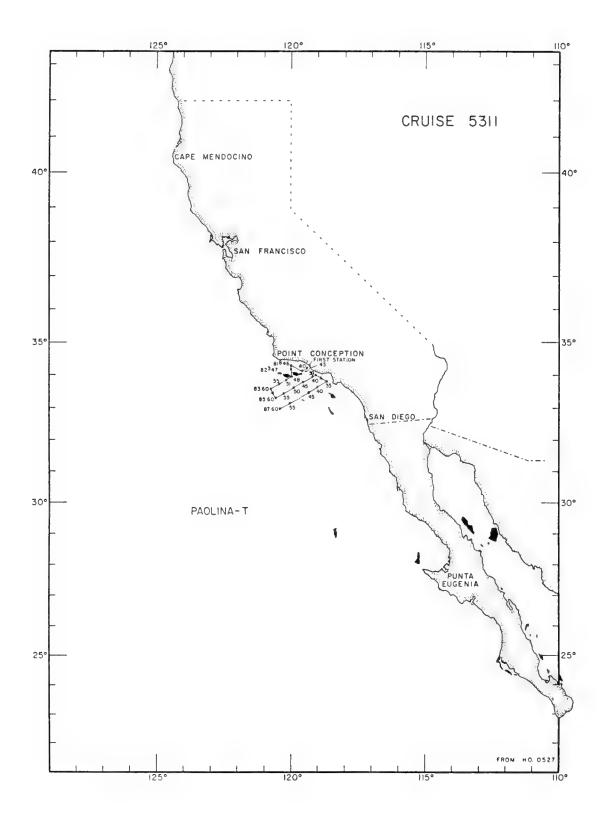


Figure 12. Station pattern for CalCOFI Cruise 5311. Symbols as in Figure 2.

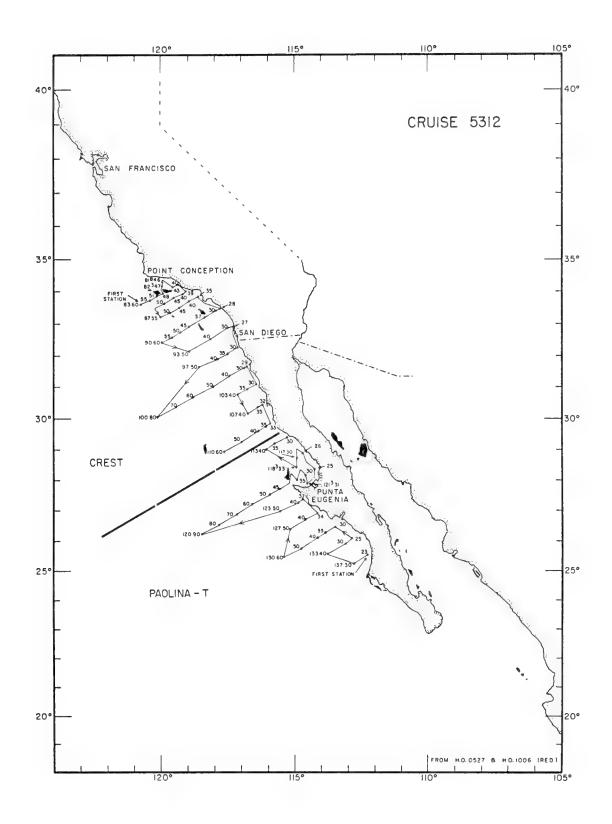


Figure 13. Station pattern for CalCOFI Cruise 5312. Symbols as in Figure 2.

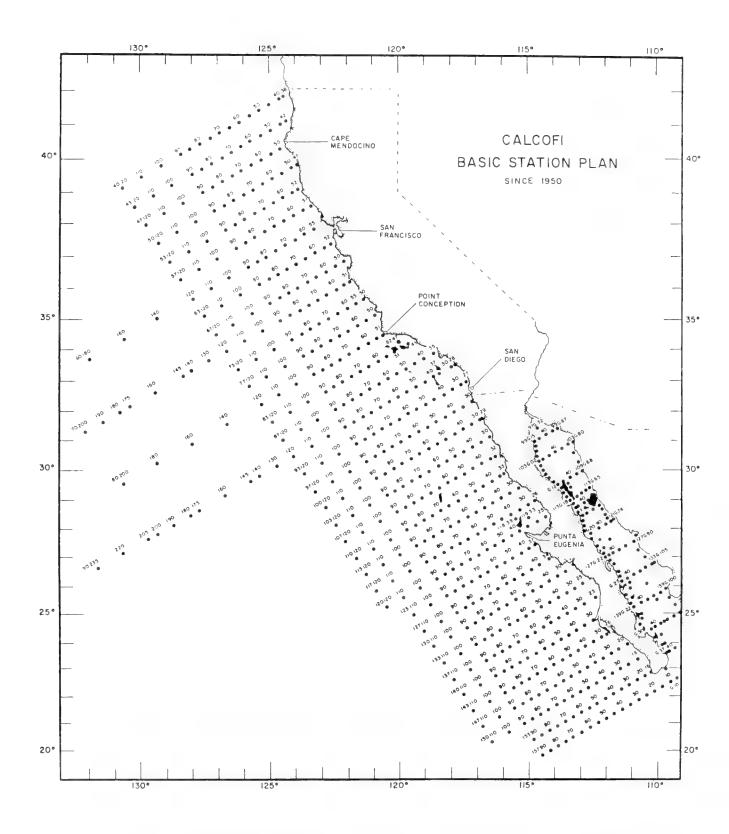


Figure 14. The basic station plan for CalCOFI cruises from 1950 to the present.

TABLE 1. Station and plankton tow data for CalCOFI cruises in 1953. Counts for fish eggs and larvae are not adjusted for standard haul factor or percent of sample sorted.

		Total Eggs	24
		Total Larvae	193 110 110 110 110 110 110 110 110 110 11
		Percent Sorted	1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00
enan Tos		Stand- ard Haul Factor	UE
sambre so		Vol. Water Strained (cu. m)	W440000W46W4C4C44444440V4CCCCA4CA4CCCCA4CA4A4ACCCCAAAAAACCCCAAAAAA
10 01	301	Tow Depth (m)	11111111111111111111111111111111111111
o jet c	ise 5	Time (PST)	00307 00307 10350 00321 00321 00321 003236 003236 003236 00325 00326 00326 00326 00326 00326 00326 00326 00326 00326 00326 00326 00326 00326 00326 00326 00326 00327 00326 00326 00326 00326 00326 00326 00326 00326 00326
naul ractor or	CalCOFI Crui	Tow Date yr. mo. day	5533 01 110 000 000 110 000 000 110 000 00
		Ship Code	YEE
are not adjusted ror standard		Long.(W) deg. min.	120 32 121 095.0 1221 254.0 1221 32.0 1221 32.0 123 32.0 120 32.0 120 24.5 120 25.0 121 25.0 121 25.0 121 25.0 122 25.0 123 25.0 124 26.0 125 26.0 127 26.0 128 26.0 129 26.0 121 26.0 121 26.0 121 26.0 121 26.0 122 26.0 123 26.0 124 26.0 125 26.0 127 26.0 128 26.0 129 26.0 120 26.0 120 26.0 120 26.0 121 26.0 121 26.0 122 26.0 123 26.0 124 26.0 125 26.0 127 26.0 128 26.0 129 26.0 120 26.0 120 26.0 120 26.0 120 26.0 121 26.0 120 26.0
		Lat.(N) deg. min.	33 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
		Station	10801 109001 1000000 1000000 1000000 1000000 100000 100000 100000 100
		Line	88888888888888888888888888888888888888

	Total Eggs	2004 1030
	Total Larvae	2011 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Percent Sorted	25.000000000000000000000000000000000000
	Stand- ard Haul Factor	EGEGEGGEGEGEGGGGGGGGGGGGGGGGGGGGGGGGGG
	Vol. Water Strained	44444604446604664446606066666666666666
301	Tow Depth	111 111 111 111 111 111 111 111 111 11
ise 5	Time (PST)	00000000000000000000000000000000000000
CalCOFI Crui	Tow Date yr. mo. day	5533 01 111 125 25 25 25 25 25 25 25 25 25 25 25 25 2
	Ship	***************************************
	Long.(W) deg. min.	1118 8 47.0 1119 8 7.0 119 8 7.
	Lat.(N) deg. min.	225 225 233.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	Station	0.000 0.000
	Line	100 100 100 100 100 100 100 100 100 100

TABLE 1. (cont.)

	Total	afifica	480	44	209	283	16	9	5	117
	Total	חמז אמה	38	15	9	35	က	24	96	16
	Percent	מסו ופח	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand- ard	Haul	ractor	2.30	1.99	2.62	2.37	1.63	2.66	2.72	2.42
Vol. Water	Strained	(cu.m)	526	306	534	503	185	523	521	537
TOW	Depth (m)		121	19	140	119	30	139	142	130
	Time	(FSI)	0126	1303	1606	2006	0914	0556	0221	2021
	Tow Date	yt. mo. day				53 01 10				_
	Ship	cone	S	క	S	S	S	5	3	G
	Long. (W)		112 22.0							111 57.0
	Lat. (N)	oeg. min.	24 01.0			23 39.0				
	1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	Station	35.0	20.0	25.0	30.0	19.0	25.0	30.0	40.0
	1	rine	143.0	147.0	147.0	147.0	150.0	150.0	150.0	150.0

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	Total Eggs	11 22 44 6
	Total Larvae	2 1 1 2 2 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
	Percent Sorted	1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00
	Stand- ard Haul Factor	12222222222222222222222222222222222222
	Vol. Water Strained	RU4044RB444RURRURA444RA44RA44RA4RA4RA4RA4RA4RA4RA4RA4RA4
5302	Tow Depth	1111 111111111111111111111111111111111
Cruise !	Time (PST)	1328 17328 17328 17328 17336 1
CalCOFI Cr	ip Tow Date de yr. mo. day	PPT
	Long.(W) Shij deg. min. Cod	1120 1220 1221 1221 1221 1221 1221 1221
	Lat.(N) deg. min.	33333333333333333333333333333333333333
	Station	0.000 0.000
	Line	88888883330000000000000000000000000000

Total Eggs	22 24 4 4 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Total Larvae	1233 1233 1233 1233 1356 1336 1336 1336 1336 1336 1336 13
Percent Sorted	10000000000000000000000000000000000000
Stand- ard Haul Factor	EEGGEGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
Vol. Water Strained (cu. m)	440444400044410460004040440044400444004
Tow Depth	11 111 111 111 111 111 111 111 111 111
Time (PST)	1746 009331 009331 110622 110622 11062 11062 110622 11062 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 110622 11
Tow Date yr. mo. day	553 022 038 02 03 03 03 03 03 03 03 03 03 03 03 03 03
Ship	***************************************
Long.(W) deg. min.	119 27.0 116 34.0 116 52.0 116 52.0 117 31.0 118 52.0 119 52.0 111 5 52.0 111 6 59.0 111 6 59.0 111 4 46.0 111 4 49.2 111 5 11 11 5 11 11 5 11 11 5 11 11 5 11 11
Lat.(N) deg. min.	30 00 00 00 00 00 00 00 00 00 00 00 00 0
Station	008884488686848888488888888888888888888
Line	1000 1000

	Total Eggs	28 965 487 11
	Total Larvae	143 141 61 496
	Percent Sorted	100.0 100.0 100.0 50.0
	Stand- ard Haul Factor	2.15 2.62 2.84 2.21
	Vol. Water Strained	257 516 487 243
5302	Tow Depth	55 135 138 54
Cruise	£1 =	1543 1311 0811 2043
CalCOFI Cr	Tow Date yr. mo. day	53 02 07 53 02 07 53 02 07 53 02 06
	Ship Code	8888
	Long.(W) deg. min.	112 56.0 113 15.0 113 57.0 112 25.5
	Lat.(N) deg. min.	26 09.5 26 00.0 25 37.5 25 41.0
	Station	25.0 30.0 40.0 23.0
	Line	133.0 133.0 133.0 137.0

Total Eggs	268 3688 3688 116 1123 1123 1123 1133 11442 11442 11442 11442 11442 11442 11442 11442 11442 11442 11443 1144
Total Larvae	3866 3866
Percent Sorted	1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00
Stand- ard Haul Factor	274mm2777mmm2mm2mm2mm2m277777mmmmm2m27277777mm 46664646409m761778000946966900000000000000000000000000000
Vol. Water Strained (cu. m)	W4W44NV44444444444444444444444444444444
Tow Depth	
Time (PST)	1124 1124 1124 1124 1124 1124 1124 1130 1130 1130 1130 1130 1130 1130 113
Tow Date yr. mo. day	55555555555555555555555555555555555555
Ship	**************************************
Long.(W) deg. min.	120 32 121 0 32 122 31 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Lat.(N) deg. min.	33333333333333333333333333333333333333
Station	100001 100001 1000001 10000000000000
Line	880.00 880.00 880.00 880.00 883.00 883.00 883.00 883.00 887.00 887.00 887.00 887.00 887.00 897.00 990.00 990.00 990.00 990.00 990.00 990.00 990.00 990.00 990.00 990.00

	Total Eggs	11 11 159 29 39 39 39 39 39 39 39 39 39 39 39 39 39
	Total Larvae	1083 1083 1083 1083 1083 1083 1083 1083
	Percent Sorted	
	Stand- ard Haul Factor	22222222222222222222222222222222222222
	Vol. Water Strained	40444044444000046600444444444444444444
5303	Tow Depth (m)	1111111 111111111111111111111111111111
Cruise	Time (PST)	221 00321 03321 11100 11200 11200 11200 11300 11300 11300 11330 11330 11330 11330 11330 11330 11330 11330 11330 11330 11330 11330 11330 11330 11300 11
CalCOFI Cr	Tow Date yr. mo. day	\$222.0000000000000000000000000000000000
	Ship	**************************************
	Long.(W) deg. min.	116 53.0 117 55.5 118 35.0 119 8 35.0 111 5 35.0 111 6 19.0 111 7 10.0 111 8 10.0 111 7 10.0 111 8 10.0 112 10.0 113 10.0 114 8 10.0 115 10.0 116 10.0 117 10.0 118 10.0 119 10.0 110 10.0 110 10.0 110 10.0 111 10.0 111 10.0 111 10.0 112 10.0 113 10.0 114 10.0 115 10.0 116 10.0 117 10.0 118 10.0 119 10.0 110
	Lat.(N) deg. min.	330 244 44 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
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Total Larvae	628 53 33 137				26 16 40			57		3	4-		80	9					o
Percent Sorted	100.0	200	000		000	000	000	000	000	00.	00.	000	.00	25.	000	000	000	000	000
Stand- ard Haul Factor	1.77 2.19 2.67 1.57	.6	0.8.2.	4.7.8	000	٥٠٠	ယ်ထံက	7.	2.9	0,8	œ.	.8	य य	.7	8.7	.0	. 1	.6	.3.
Vol. Water Strained (cu. m)	237 179 266 343	922	4000	8 H V	0 7 5	0	5-1-2	400	3	98	≈	$\infty \infty$	72	യസ	00	20	3	50 m	10
Tow Depth	42 71 54	20 20 20	70 (J) 4 1 (חמח	129 138 138	23	ກນຸ	004	141	4 C	നന	ကက	ഗന	132	4 C	W 4	4 C	447	0 KO
Time (PST)	2244 0328 0603 1958	71 83 91	333	31 62 81	14	71	7142	60 70 70 70 70 70 70 70 70 70 70 70 70 70	91	01	64 45	81	30	13	35	33	92	279	57.4
Tow Date yr. mo. day	53 04 02 53 03 18 53 03 18 53 04 02	3 04 0 1 0 4 0 1 0 4 0	8888 8888 1406	33 04 33 03 1 1 1	33 04 03 04 04 0	3 04 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		3033	3 03 1 3 03 3	3 03 1 3 03 3	3 03 3	3 03 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 03 3 3 03 3	3 03 3 3 03 1	3 03 1 3 03 3	3 03 3 3 03 1	2000 c	3 03 2
Ship	SECRE	888	888	366	S CR S	SB	8 8 8 8	55%	S S S	S. S.	SB	S S	S S	S. S.	88 5	S. S.	88 88	888	SB
Long.(W) deg. min.	114 15.0 114 14.3 114 34.0 114 32.6	14 54. 14 54. 15 16.	15 17. 15 33. 15 32.	15 51. 15 49. 16 11.	16 13. 16 32.	17 13. 18 01.	18 28. 14 39.	14 51.	15 11.	15 32. 15 30.	15 50. 15 49.	16 08. 16 10.	14 06. 14 06.	14 28. 14 27.	14 50. 14 48.	15 06. 15 04.	15 35. 15 27.	15 46. 15 51.	13 29. 13 29.
Lat.(N) deg. min.	28 23.0 28 23.0 28 13.0 28 10.5	8 03. 8 03. 7 57.	7 55. 7 43.	7 34. 7 22.	7 26. 7 10. 7 16.	6 56. 6 33.	6 12. 7 24.	7 18.	7 08.	6 58. 6 56.	6 49. 6 47.	6 40. 6 39.	6 55. 6 55.	6 43. 6 43.	6 35. 6 33.	6 22. 6 29.	6 10. 6 12.	6 04.	6 30.
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ine	120.0 120.0 120.0	000	000		000	000	0	, m m		mm		mm.	7:	7:	7:	7:	7:	7:0	

CalCOFI Cruise 5303

	Total Eggs	1223 1223 1223 1223 1230 1230 1230 1230
	Total Larvae	3 3 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
	Percent Sorted	
	Stand- ard Haul Factor	28222222222222222222222222222222222222
	Vol. Water Strained (cu. m)	44044444444444444444444444444444444444
	Tow Depth	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Time (PST)	11001011111111111111111111111111111111
	Tow Date yr. mo. day	55555555555555555555555555555555555555
	Ship	888888888888888888888888888888888888888
	Long.(W) deg. min.	1113 2 2 4 5 5 111 11 2 2 5 5 5 111 1 2 2 5 5 5 5
	Lat.(N) deg. min.	22222222222222222222222222222222222222
	Station	WW4444RRVRRAAAARRWWWA444ARRRWRAAAARRRWWWWWAAAAARRRWWWWWWWW
	ine	33333333333333333333333333333333333333

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	Total Eggs	23258 1000	
	Total Larvae	L 28 2 4 1	
	Percent Sorted	100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000	
	Stand- ard Haul Factor	23322222222222222222222222222222222222	
	Vol. Water Strained	288892200002020203334034600020203333 2700002020200003200000000000	
* 000	Tow Depth	8 4 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	
מדמע	Time (PST)	00000000000000000000000000000000000000	
Carcor Car	Tow Date yr. mo. day	53333333333333333333333333333333333333	
	Ship Code		
	Long. (W) deg. min.	1123 3 44	
	Lat.(N) deg. min.	33333333333333333333333333333333333333	
	Station	\$550.00 \$550.0	
	ine	66600000000000000000000000000000000000	

	Total Eggs	1100 1100 1100 1100 1100 1100 1100 110
	Total Larvae	1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Percent Sorted	1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00
	Stand- ard Haul Factor	82222288222222222222222222222222222222
	Vol. Water Strained (cu. m)	40040444446004440640404644444444444444
5304	Tow Depth (m)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
se	Time (PST)	23156 119321 119321 119321 119321 119321 119333 119333 119356 119
CalCOFI Crui	Tow Date yr. mo. day	\$2233333333333333333333333333333333333
	Ship	844848484444444466666666666688888888888
	Long. (W) deg. min.	1119 1119
	Lat.(N) deg. min.	333 3446 20 333 3446 20 333 3446 20 333 3446 20 333 3446 20 333 346 20 3
	Station	800.000.000.000.000.000.000.000.000.000
	ine	00000000000000000000000000000000000000

	Tota] Eggs	2010881
	Total Larvae	138 111 120 120 120 120 120 120 120 120 120
	Percent Sorted	
	Stand- ard Haul Factor	######################################
	Vol. Water Strained (cu. m)	4.0000408000040800000000000000000000000
5304	Tow Depth	11111111111111111111111111111111111111
ise	Time (PST)	11456 00501 00501 00506 00506 001041 10021
CalCOFI Cru	Tow Date yr. mo. day	53333333333333333333333333333333333333
	Ship	8866666666666666666666666666666666666
	Long.(W) deg. min.	117 50.0 118 26.0 119 26.0 119 9.6.0 119 9.6.8 1120 28.0 116 47.0 117 28.0 118 27.0 119 28.0 110 46.0 111 46.0 111 23.0 111 20.0 111 20.0
	Lat.(N) deg. min.	31 55 31 270 31 1395 31 1395 31 1395 31 1305 31 1305 31 120 32 225 33 1 225 34 225 35 1 25 36 1 25 37 1 25 38 2 2 2 3 38 2 2 2 5 39 2 2 2 5 30 2 2 2 5 30 2 2 2 5 30 2 2 2 5 30 3 5 30 5
	Station	0.000000000000000000000000000000000000
	Line	997.0 907.0 907.0 907.0 907.0 907.0 907.0 907.0 907.0 907.0 907.0

CalCOFI Cruise 5304

Total Eggs	100 1100 1100 1200 1200 1200 1200 1200
Total Larvae	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Percent Sorted	10000000000000000000000000000000000000
Stand- ard Haul Factor	22122222222222222222222222222222222222
Vol. Water Strained	44094444444444444444444444444444444444
Tow Depth	11111111111111111111111111111111111111
Time (PST)	22223 222346 222346 222346 222336 222233 222233 22223
Tow Date yr. mo. day	55555555555555555555555555555555555555
Ship Code	S S S S S S S S S S S S S S S S S S S
Long.(W) deg. min.	1118 59 1115 187.0 1115 187.0 1116 189.0 1117 189.0 1117 189.0 1118 189.0 1118 189.0 1119 189.0
Lat.(N) deg. min.	88888888888888888888888888888888888888
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25 362 362 362 302 245 516 516 676 1267 1267 1267 1268 1268 1268 1388 138 Total Eggs Total Larvae Percent Sorted 25.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 22.22.65 22.23.33.33.33.865 23.33.3064 22.33.3064 23.366 23.366 23.366 23.366 23.366 23.366 23.366 23.366 23.366 Factor Stand-ard Haul Vol. Water Strained (cu. m) 4887 Tow Depth (m) 1123 11233 11233 11244 11245 11245 11245 11340 1 5304 Time (PST) 0826 1036 11626 11626 11711 11711 11711 11711 11711 1171 1176 CalCOFI Cruise Tow Date yr. mo. day Ship Code Long. (W) deg. min. Lat.(N) deg. min. 2399.0 200.0 Station 330.00 330.00 330.00 330.00 330.00 330.00 330.00 330.00 330.00 330.00 330.00

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Total Eggs	14 122 1 1 1 1 1 2 2 2 1 1 1 1 1 2 2 2 2	
Total Larvae	0 1 12 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 2 1 2 2 1 2	
Percent	1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00	
Stand- ard Haul Factor		
Vol. Water Strained (cu. m)	WRWAAARWUAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
Tow Depth	1111 111111111111111111111111111111111	
Time (PST)		
Tow Date	00000000000000000000000000000000000000	
Ship		
Long.(W) deg. min.	000104040404040404040404040404040404040	
Lat.(N) deg. min.	84 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Station	2 2000/800020000000000000000000000000000	
ine		

	Total Eggs	262 262 2645 2645 2744 27	
	Total Larvae	1 2 2 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2	
	Percent Sorted	100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000	
	Stand- ard Haul Factor	40100000444440004010000000000000000000	
	Vol. Water Strained (cu. m)	800944440806044460060444460604460604460604460604460604460604460604460604460604460604460604460604460604606046060460604606046060604606060460606046060604606046060460604606046060460604606060460606046060604606060460606060460	
303	Tow Depth	11111111111111111111111111111111111111	
nse o	Time (PST)	11756 2000 2000 2000 2000 2000 2000 2000 20	
Calcori Cruis	Tow Date yr. mo. day	553 05 00 00 00 00 00 00 00 00 00 00 00 00	
	Ship		
	Long.(W) deg. min.	120 43.1 122 126.8 1122 11.0 1139 04.0 1119 10.2 1119 10.2 1119 31.0 1119 31.0 1119 33.3 1119 55.6 1119 50.4 1118 58.5 1119 50.4 1119 55.5 1119 55.5 1119 55.5 1119 55.3 1119 11.0 1119 11.0	
	Lat.(N) deg. min.	33333333333333333333333333333333333333	
	Station	600 390 390 390 390 390 390 390 3	
	Line	88833333000000000000000000000000000000	

CalCOFI Cruise 5305

Total Eggs	100 100 100 100 100 100 100 100 100 100	
Total Larvae	0.000000000000000000000000000000000000	
Percent Sorted	10000000000000000000000000000000000000	
Stand- ard Haul Factor	ZEZIGIO DE LA SERE E LA SE	
Vol. Water Strained	######################################	
Tow Depth	1111111111	
Time (PST)	00000000000000000000000000000000000000	
Tow Date yr. mo. day	55 55 55 55 55 55 55 55 55 55 55 55 55	
Ship	HOOOOOO KEE KAE KAE KAE KAE KAE KAE KAE KAE KAE	
Long.(W) deg. min.	1125 1 1 1 2 5 1 1 1 2 5 1 1 1 2 5 1 1 1 2 5 1 1 1 2 5 1 1 1 2 5 1 1 1 1	
Lat.(N) deg. min.	229 229 229 229 229 229 229 229 229 229	
Station	1111 1220 1211 1220 1220 1220 1220 1230	
Line	10000000000000000000000000000000000000	

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	Total Eggs	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
	Total Larvae	10 10 10 10 10 10 10 10 10 10	
	Percent Sorted	10000000000000000000000000000000000000	
	Stand- ard Haul Factor	80222222222222222222222222222222222222	
	Vol. Water Strained (cu. m)	44444664466644666646666666666666666666	
305	Tow Depth		
118e 5	Time (PST)	10000000000000000000000000000000000000	
Carcori Cruis	Tow Date yr. mo. day	5533 055 115 15 16 16 16 16 16 16 16 16 16 16 16 16 16	
	Ship		
	Long.(W) deg. min.	1118 03.4 1119 22.3 1120 22.3 1116 30.2 1116 30.2 1116 31.4 1117 33.5 1118 35.0 1118 38.5 1118 38.5	
	Lat.(N) deg. min.	29 31 3 5 6 5 5 6 5 5 6 5 5 6 5 5 6 5 5 6 5 5 6 5 5 6 5 5 6 6 5 5 6 6 5 5 6 6 5 6	
	Station	00008440000000000000000000000000000000	
	Line	10000000000000000000000000000000000000	

	l Total ae Eggs		, c	77	3	1 7	9 20	2 36	0	1	4	106	7	2 29	7	0	7 5		4 1	n	1 25	0	9 28	9 20	378	2	0	&	♥ .	5 415	9	7	7 145
	Total Larvae	c	7) (יי	Ω		38	7	7				7	m	11	10	7			_	m		19				7					m	2
	Percent Sorted	9		90	00.	50.	00	00	00	00.	00.	00	00	00		00.	00.	50.	00.		00	00	00	00	00	50.	00		00	100.0	50.		00
	Stand- ard Haul Factor	0	7.8	2.28	7.60	2.59	2.47	2.11	2.69	2.94	1.59	2.37	2.65	3.38	2.64	3.12	2.62	2.29	2.14	2.80	2.42	2.06	2.69	1.97	2.75	1.63	2.41	2.45	3.07	3.18	2.71	2.75	3.16
Vol.	St.	C	~ (η.	4	0	\vdash	9	\vdash	1	~	5	9	2	9	S	0	7	2	9	2	7	9	2	0	4	4	က	9	520	~	g	5
	Tow Depth	- (134	N	9	S	2	\vdash	m	141	4	C	E	4	129	4	က	9	$\overline{}$	138	2	_	S	2	B	41	m	3	4	165	Ţ	\sim	4
	Time (PST)		2016	2346	0203	2200	1741	1436	1106	0801	0553	0856	1216	1501	1846	2126	0111	2038	1631	1149	0804	0331	1100	1930	1600	0158	0751	0941	1331	1616	2012	0103	0501
	Tow Date yr. mo. day		3 05 1	3 05 T	3051	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 1	3 05 0	3 05 0	3 05 0	3 05 0	3 05 0	3 05 0	53 05 08	3 05 0	3 05 0	3 05 0
	Ship	!	E I	뒲	PT	PT	PŢ	PT	PT	Z	P.	Ld	ā	ď	PT	PT	PT	PT	PT	PT	뒲	뒲	PT	掹	PT	PŢ	PT	PT	뒲	PT	뮵	PT	Ęd
	Long.(W) deg. min.	•	15 43.	16 00.	14 05.	14 27.	14 45.	15 07.	15 18.	15 39.	13 30.	13 48.	14 06.	14 22	14 40.	15 02.	15 24.	12 46.	13 10.	13 31.	13 49.	14 08.	14 26.	14 43.	15 02.	12 18.	12 45.	12 55.	13 21.	113 41.3	14 02.	14 19.	14 36
	Lat.(N) deg. min.		6 47.	6 36.	6 54.	6 40.	6 33.	6 24.	6 08	6 02	6 28	6 17.	6 08.	7 28	5 47.	5 38	5 29.	6 02.	5 57.	5 50.	5 39.	5 28.	5 16.	5 05.	4 54.	5 34.	5 18.	5 16.	5 03.	24 49.1	4 40.	4 27.	4 13.
	Station		5	0	4	0	5		٠.	Ċ		٠,٠		٠ س		Š	0	6		S	0	5	0	2	0	<u></u>	0	2	0	45.0	0	Š	_
	Line		23.	23.	27.	27.	27.	27.	27	27.	30	200	200	200	300	30.	30.	3	38	33	33	33.	33	33	33	37.	37.	37.	37.	137.0	37.	37.	37

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	Total Eggs	11
	Total Larvae	262 166 111 4 21 21 21 1 1 1 1 16261 24744026746625612887514784407867750041077788
	Percent Sorted	10000000000000000000000000000000000000
	Stand- ard Haul Factor	00000000000000000000000000000000000000
	Vol. Water Strained	4 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
5306	Tow Depth	111 1111111111111 11 111 1111111 11 1111
Cruise	Time (PST)	11328 11328 11228 100826 100826 100826 10321 11331 113326
CalCOFI Cr	Tow Date yr. mo. day	553 06 111 553 06 112
	Ship	
	Long.(W) deg. min.	123 15.0 1223 37.0 1223 37.0 1223 48.0 1223 48.0 1222 48.0 122 27.0 122 27.0 122 48.0 122 27.0 123 48.0 123 48.0 123 48.0 123 48.0 121 48.0 122 27.0 121 37.5 121 30.0 122 30.0 123 30.0 123 34.0 120 55.0 121 58.5 120 58.5 121 58.5 122 57.0 123 54.0 123 57.0 123 57.0
	Lat.(N) deg. min.	33333333333333333333333333333333333333
	Station	0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.
	Line	600 600 600 600 600 600 600 600 600 600

CalCOFI Cruise 5306

Total Eggs	11
Total Larvae	01000011 01000011 01000011 01000011 01000011 01000011 01000011 01000011 01000011 01000011 01000011 01000011 01000011
Percent Sorted	25.0 25.0 25.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0
Stand- ard Haul Factor	64464646464646464646464646464646464646
Vol. Water Strained (cu. m)	4U4UU4U444444U44AAAAAAAAAAAAAAAAAAAAAA
Tow Depth (m)	1 111111 11111111111111111111111111111
Time (PST)	2326 0012326 001326 001326 001233 113235 113235 113235 113235 113236 00125 001
Tow Date yr. mo. day	553 06 111 553 06 112 553 06 111 553 06 112 553 06 112 553 06 112 553 06 111 553 06 111 553 06 111 553 06 112 553 06 111 553 06 111 553 06 112 553 06 111 553 06 112 553 06 111 553 06 112 553 06 112 553 06 112 553 06 112 553 06 112 553 06 112 553 06 112 553 06 112
Ship	HALLIJAJAJAJAJAJAJAJAJAJAJAJAJAJAJAJAJAJA
Long.(W) deg. min.	1119 04.0 1119 10.5 1119 10.5 1119 311.0 1119 311.0 1120 12.0 1120 12.0 1120 12.0 1121 12.0 1121 12.0 1122 24.6 1121 12.0 1122 24.6 1121 12.0 1121 12.0 1121 12.0 1121 12.0 1121 12.0 1131 12.0 1131 12.0 1131 12.0 1131 13.0 1131 13.0
Lat.(N) deg. min.	33333333333333333333333333333333333333
Station	88999999999999999999999999999999999999
Line	00000000000000000000000000000000000000

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Total Eggs	11328912 11328912 113333333333333333333333333333333333
Total Larvae	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Percent Sorted	1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00
Stand- ard Haul Factor	000 000 000 000 000 000 000 000 000 00
Vol. Water Strained (cu. m)	######################################
Tow Depth	11111111111111111111111111111111111111
Time (PST)	11066 11066
Tow Date yr. mo. day	553 3 3 4 4 4 4 4 4 6 6 6 6 6 6 6 7 5 7 7 7 7 7 7 7 7 7 7 7
Ship	
Long.(W) deg. min.	1118 100 0 1118 1100 1118 1100 1118 1100 1119 1110 1110
Lat.(N) deg. min.	22222222222222222222222222222222222222
Station	0.000 0.000
ine	9977.00 9077.00 9077.00 9077.00 9077.00 9077.00 9077.00 9077.00 9077.00 9077.00 907

CalCOFI Cruise 5306

Total Eggs	22 122 23 20 20 20 20 20 20 20 20 20 20 20 20 20	
Total Larvae	2 2 3 3 8 4 5 7 5 8 8 6 8 7 7 8 8 1 1 8 8 1 1 1 1 1 1 1 1 1 1 1	
Percent Sorted		
Stand- ard Haul Factor	00000000000000000000000000000000000000	
Vol. Water Strained (cu. m)	######################################	
Tow Depth	4464672264461868632216466486744869190940244491909940266969699409994099940999409999999999	
Time (PST)		
Tow Date yr. mo. day		
Ship		
Long.(W) deg. min.	104001401401606666666666666666666666666	
Lat.(N) deg. min.	00000000000000000000000000000000000000	
Station	44940000000000000000000000000000000000	
ine		

	Total Eggs	138 422 69 110 100 100 100 100 100 100 100 100 10	
	Total Larvae	49 17 17 13 13 14 14 14 14 14 14 14 14 15 16 17 18 18 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	
	Percent Sorted	50.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0	
	Stand- ard Haul Factor	22222222222222222222222222222222222222	
	Vol. Water Strained (cu. m)	44445244444444444444444444444444444444	
2306	Tow Depth	107 128 128 128 128 133 131 148 151 151 151 151	
uise	Time (PST)	1626 1311 1031 1203 11501 1841 00231 00441 00241 1924 1924 1924 1924 1924 1926 0126	
calcori cruise	Tow Date yr. mo. day	53 06 07 533 06 07 533 06 07 533 06 06 533 06 06 533 06 07 533 06 06 533 06 05 533 06 05 533 06 05 533 06 05 533 06 05 533 06 05	
	Ship		
	Long.(W) deg. min.	1115 05.0 1115 26.0 1113 44.0 1114 24.0 1115 13.0 1115 13.0 1113 10.0 1113 45.3 1114 03.5 1112 45.0 1113 45.5 1114 03.5 1113 45.0 1113 45.0	
	Lat.(N) deg. min.	26 23.5 26 11.5 26 11.5 26 11.0 26 31.8 26 19.5 25 10.8 25 48.0 25 48.0 25 34.9 25 10.9 25 10.9 24 49.8 24 49.8	
	Station	0.000	
	ine	227.0 227.0 227.0 227.0 237.0 2333.0 237.0 237.0 237.0	

CalCOFI Cruise 5307

rotal Eggs	168 88 44 1 42 1 22 1 12 2 14 8 8 12 2 2 1 8 1 8 1 8 2 2 2 2 2 8 1 8 2 8 1 8 1
Total Larvae	11 13 13 13 13 13 13 13 13 13 13 13 13 1
Percent Sorted	1000 1000 1000 1000 1000 1000 1000 100
Stand- ard Haul Factor	246692666466666666666666666666666666666
Vol. Water Strained	0.000000000000000000000000000000000000
Tow Depth	111228 113288 113288 113288 113288 113288 113288 113388 113388 113388 113388 113388 113388 113388 113388 113388
Time (PST)	00827 00827 118316 118316 118316 118316 118316 118316 119316 119316 11931 11931 11931 11931 11931 11931 11931 11931 11931 11931 11931 11931 11931 11931
Tow Date yr. mo. day	553 07 111 17 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19
Ship	***************************************
Long.(W) deg. min.	123 16.5 124 21.0 125 421.0 125 51.0 125 51.0 122 26.0 122 26.0 122 26.0 123 16.5 123 16.5 123 16.5 123 17.5 121 17.5 121 17.5 121 17.5 122 35.0 121 35.0 121 35.0 120 25.0 120 25.0 120 45.0 120 45.0 120 45.0 120 45.0 120 45.0 120 45.0 120 47.0 120 48.0 120 48.0
Lat.(N) deg. min.	33333333333333333333333333333333333333
Station	00000000000000000000000000000000000000
Line	60000 60000 60000 60000 60000 60000 60000 7770 7770 7770 7770 7770 7770 7770 7770 8800 88000 8800 8000

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Total Eggs	000 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	11 92 17 14 421 30 117 451	3001 187 187 38 38 52 52	43 194 20 20 140 161 276 23	202 205 205 205 205 207 201 201 466
Total Larvae		12 10 12 240 80 34 20	113 21 30 10 14 28	2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	247244 8 94609948 9489
Percent Sorted	0000000		00000000	000000000000000000000000000000000000000	100000000000000000000000000000000000000
Stand- ard Baul Factor	1.600.67.7	4. 4. 4. 4. 6. 6. 4. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	6408E460V	0000044000	22422222222222222222222222222222222222
Vol. Water Strained (cu. m)	W04047W	12000R987	८०4.५५५७००	5817408497	2823 2833 2833 2833 2833 2833 2833 2833
Tow Depth	ころうりゅうろく	135 143 135 136 136 136	らえるこれよりよう	ろこすすすごうろろり	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Time (PST)	4404424	02243583 2022435	367964128 367367335	004400024	01120 01346 0146 01421 01421 0146 11646
Tow Date yr. mo. day	33 07 11 07 1	33 07 1 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	20000000000000000000000000000000000000	33333333333333333333333333333333333333	53 07 22 53 07 22 53 07 19 53 07 19 53 07 19 53 07 18 53 07 18
Ship	5555555	88888888			
Long.(W) deg. min.	19 38. 20 20. 17 46. 17 55. 18 23.	19 17. 19 32. 19 55. 20 39. 17 18. 17 32. 18 13.	18 53. 17 26. 17 26. 17 48. 18 06. 18 32. 16 43.	17 28 17 49 118 69 118 48 119 26 20 14 116 45 117 64 117 64	116 27.0 116 20.0 116 20.0 116 50.0 117 20.0 115 21.5 115 37.5
Lat.(N) deg. min.	3 20. 3 20. 3 28. 3 24. 2 54.	2 44. 2 34. 2 24. 2 56. 2 49. 2 29.	2 09. 2 15. 2 07. 1 57. 1 49. 1 40.	0 1 0 3 3 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	29 25.2 29 48.8 29 48.8 29 35.2 29 18.0 29 10.0
Station	57.0805.	000000000000000000000000000000000000000	00000000	000000000	00000000000000000000000000000000000000
Sine	7.70	000000000000000000000000000000000000000	993.		0.000000000000000000000000000000000000

CalCOFI Cruise 5307

Total Eggs	372 1019 1019 1019 1019 1019 1019 1019 101
Total Larvae	7447 1111 1111 1111 1111 1111 1111 1111
Percent Sorted	10000000000000000000000000000000000000
Stand- ard Haul Factor	11222222222222222222222222222222222222
Vol. Water Strained (cu. m)	W440WW40V40V44V4V4WW4WW4WW4WW4WW4WW4WW4WW4WW4WW4WW4
Tow Depth	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Time (PST)	2330 0640 11031
Tow Date yr. mo. day	553 07 112 113 115 115 115 115 115 115 115 115 115
Ship	
Long.(W) deg. min.	1114 36.28 1115 36.28 1115 36.28 1115 36.28 1116 36.28 1117 06.88 1117 06.88 1118 26.00 1118 26.00 1118 26.00 1118 26.00 1118 26.00 1118 26.00 1118 26.00 1118 26.00 1118 26.00
Lat.(N) deg. min.	28 453 88 88 88 22 28 88 88 88 88 88 88 88 88
Station	00000000000000000000000000000000000000
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	Total Eggs	144997777777777777777777777777777777777	
	Total Larvae	11	
	Percent Sorted	1000 1000 1000 1000 1000 1000 1000 100	
	Stand- ard Haul Factor	20000000000000000000000000000000000000	
	Vol. Water Strained (cu. m)	L444EEVA44EEVA44EEVA44EEVAAEVAAEVAAEVAAEV	
0000	Tow Depth	11 11111 11111 11111 111111 111111 11111	
ernio	Time (PST)	11453 11453 11753 11748 11748 11748 11748 11736 11736 11736 11736 11736 11736 11736 11736 11736 11736 11736 11736 11736 11736 11737 11738	
Carcori CII	Tow Date yr. mo. day	\$2333333333333333333333333333333333333	
	Ship		
	Long.(W) deg. min.	123 14.2 1224 41.5 1225 42.5 1225 42.5 1222 24.5 1222 24.5 1223 24.5 1223 24.5 1223 24.5 1224 40.5 123 16.5 123 16.5 123 16.5 123 16.5 123 16.5 123 16.5 123 16.5 123 16.5 123 16.5 124 17.5 125 17.5 125 17.5 126 17.5 127 17.5 128 17.5 129 17.5 120 17.5	
	Lat.(N) deg. min.	333 334 445.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	Station	20000000000000000000000000000000000000	
	Line	60.00 60.00	

CalCOFI Cruise 5308

Total Eggs	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	275 423 74 1283
Total Larvae	1188 346 14 19 10 0 3 2 0 3 2 2 14 16 46 3 3 1 10 10 3 2 14 16 3 1 10 10 3 2 14 16 16 16 16 16 16 16 16 16 16 16 16 16	22 88 58
Percent Sorted	1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0 1000.0	0000
Stand- ard Haul Factor	2824222822222288888888828222222222888888	7 W 4 W
Vol. Water Strained (cu. m)	44646444444444444444444444444444444444	10707
Tow Depth	11 11111111111111111111111111111111111	94 124 125
Time (PST)	1320 1000 1000 1000 1000 1000 1000 1000	827 827 827 827 827
Tow Date yr. mo. day	00000000000000000000000000000000000000	00000
Ship	**************************************	18888
Long.(W) deg. min.	87577779 87577779 87577779 87577779 8757779 8757779 8757779 87577	14 56. 15 17. 15 34. 14 14.
Lat.(N) deg. min.	3 000000000000000000000000000000000000	8 48 8 29 8 23.
Station	$\begin{array}{c} w_{4}v_{0}v_{0}\phi_{F}\zeta_{4}w_{4}v_{0}w_{0}w_{0}\psi_{4}v_{0}\psi_{0}\zeta_{5}w_{0}\zeta_{6}\psi_{0}\zeta_{7}\psi_{0$	20000
ine	000000000000000000000000000000000000000	7.7.0

CalCOFI Cruise 5308

Total Eggs	11286 11286 1286 1263 1263 1263 1264 127 123 123 123 123 123 123 123 123 123 123
Total Larvae	173 368 188 153 179 779 779 779 779 779 779 779 779 779
Percent Sorted	10000000000000000000000000000000000000
Stand- ard Haul Factor	22332233333322222223333322222222222222
Vol. Water Strained (cu. m)	20084444446046464646464646464646464646464
Tow Depth	11122344708 1222344427 122344427 133154422 133154423 133154443 13315444 13315444 1331544 1331544 1331544 1331544 1331544 1331544 1331544 1331544 1331544 1331544 1331544 133154
Time (PST)	2052 23053 171153 171153 17238 17338
Tow Date Yr. mo. day	553 08 09 09 09 09 09 09 09 09 09 09 09 09 09
Ship Code	55555555555555555555555
Long.(W) deg. min.	1114 33.5 1115 33.0 1115 33.0 1117 416.5 1117 416.5 1118 25.0 1114 40.0 1115 30.5 1114 28.5 1114 28.5 1114 28.5 1115 29.0 1117 44.5 1117 44.5 1113 26.0 1113 26.0
Lat.(N) deg. min.	28 12.5 27 43.0 27 32.5 27 32.5 26 31.0 26 31.0 27 11.5 27 11.5 27 14.5 26 29.0 26 29.5 26 29.5 26 29.5 26 29.5 27 29.5 28 29.0 28 29.0
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	Total Eggs	11184 1196 1196 1196 1196 1197 1197 1197 1197
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	Total Larvae	1188
	Percent Sorted	1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00 1000.00
Stand-	ard Haul Factor	1808222222222222111122122122121111111111
Vol.	Water Strained (cu. m)	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	Tow Depth	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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	Long. (W) deg. min.	1119 58 1119 59.5 1119 52.0 1119 54.5 1120 24.5 1120 24.5 1120 24.5 1120 10.5 1130 10.5 1130 10.5 1130 10.5 114 45.0 115 10.3 114 45.7 115 25.2 115 25.2 116 25.2 117 25.2 118 33.9 118 45.7 118 45.7 119 10.3
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	Total Eggs	23 24 25 26 31 33 33 34 34 34 34 34 34 34 34 34 34 34
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	Percent Sorted	0.000000000000000000000000000000000000
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	Vol. Water Strained	4 110 80 80 80 80 80 80 80 80 80 80 80 80 80
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ise 5.	Time (PST)	01126 013126 013130 0131310 01051333 011735 011735 011735 011735 011825 01110 0111336 011336 011336 011336 011336 011336 011336 011336 011336 011331 011333
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	Long.(W) deg. min.	1119 59.5 1119 22.0 1120 24.5 1120 24.5 1120 24.5 1130 24.5 113 24.5 113 24.0 114 24.0 115 25.0 117 09.5 117 09.5 118 56.5 117 40.0 118 43.0 119 25.0 110 44.0 1116 25.0 1116 25.0 1116 25.0 1116 25.0 1116 25.0 1117 06.0 1118 24.0 1118 24.0 1118 24.0 1118 24.0 1119 25.0 1119 25.0 1119 25.0 1116 25.0 1116 25.0 1116 25.0 1117 01.5 1117 01.5 1117 01.5
	Lat.(N) deg. min.	34 10 33 33 33 33 33 33 33 33 33 33 33 33 33
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	Total Eggs	275 1060	443 36	10	ָנאי	Θ	316	21	125	32	7	128	77	287	275	20	# 0 0	100
	Total Larvae	215 11 180	56 22	68	06	25	8 8 9 9	120	24	$1\overline{23}$	17	היני	146	12	80	117	300	750
	Percent Sorted	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.001	100.0	100.0	100.0	100.0	0.00	TOO.0
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	Vol. Water Strained (cu. m)	420 178 308	394	400	399	424	232	428	385 247	515	359	212	347	384	233	429	טאט כאסר	TAD
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CalCOFI Cruise 5311

Total Eggs	283	46	243	315	104	138	186	437	233	91	75	32	405	119	282	137	59	6
Total Larvae	171	194	69	363	194	287	15	999	275	182	23	10	20	605	53	21	26	24
Percent Sorted	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stand- ard Haul Factor		1.29	3.27	1.57	3,33	2.52	2.36	2.00	3.13	2.90	3.96	1.92	1.85	3.60	2.56	3.82	3.59	2.48
Vol. Water Strained (cu. m)	479	145	462	211	294	564	534	537	435	474	420	633	109	442	529	425	434	528
Tow Depth	140	135	151	33	86	142	126	107	136	137	167	121	111	159	135	162	156	131
Time (PST)	1440	0755	1001	1849	2123	0031	0445	0146	0016	1831	1451	1025	9080	0536	0921	1301	1926	2311
Tow Date yr. mo. day	===	53 11 10	17	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
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	Total Eggs	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Total Larvae	233 236 237 237 237 237 237 237 237 237 237 237
	Percent Sorted	
	Stand- ard Haul Factor	444614460000000000000000000000000000000
	Vol. Water Strained (cu. m)	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
5312	Tow Depth (m)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
86	Time (PST)	10000000000000000000000000000000000000
CalCOFI Crui	Tow Date yr. mo. day	\$223
	Ship	66666666666666666666666666666666666666
	Long.(W) deg. min.	1119 58 1119 58 1119 58 1120 222.0 1120 222.0 1120 25.0 1119 045.5 1119 11.0 1117 55.0 1118 55.0
	Lat.(N) deg. min.	33 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
	Station	4 3 3 2 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	ine 9	8888833.0 887.0

CalCOFI Cruise 5312

Total Eggs	126 1106 127 127 132 132 132 132 133 144 147 144 144 147 170 170 170 170 170 170 170 170 170 17	3
Total Larvae	242 111 141 100 100 1138 1138 1138	1
Percent Sorted		•
Stand- ard Haul Factor	12222222112212222222222222222222222222	•
Vol. Water Strained (cu. m)	4854810282222222222222222222222222222222222	-
Tow Depth	1132 134 135 137 137 137 137 137 137 137 137 137 137	111
Time (PST)	006427 006427 0072465 0073465 0073465 0073465 0073465 007366 0073	2
Tow Date yr. mo. day	5533 112 112 113 113 113 113 113 113 113 1	77 6
Ship Code		4
Long.(W) deg. min.	1115 53.0 1116 000.0 1116 109.5 1117 38.0 1118 1118 1118 1119.5 1119 1119 1119 1119 1119 1119 1119 111	· C# 7T
Lat.(N) deg. min.	22999999999999999999999999999999999999	.02 6
Station	0.000000000000000000000000000000000000	•
ine		•

TABLE 2. Pooled occurrences of fish larvae taken during CalCOFI cruises in 1953.

Rank	Taxon	Occurrences
1	Sebastes spp.	771
2	Engraulis mordax	686
3	Leuroglossus stilbius	612
4	Triphoturus mexicanus	573
5	Citharichthys spp.	561
6	Merluccius productus	417
7	Lampanyctus spp.	393
8	Stenobrachius leucopsarus	365
9	Vinciguerria lucetia	329
10	Trachurus symmetricus	322
11	Unidentified fish larva	284
12	Bathylagus wesethi	258
13	Tarletonbeania crenularis	243
14	Diogenichthys laternatus	232
15	Sardinops sagax	221
16	Protomyctophum crockeri	211
17	Bathylagus ochotensis	208
18	Cyclothone spp.	161
19	Melamphaes spp.	151
20	Symbolophorus californiensis	132
21	Icichthys lockingtoni	114
22	Scomber japonicus	97
23	Paralepididae	95
24	Labridae	93
25	Argentina sialis	89
26	Stomias atriventer	86
27	Disintegrated fish larva	74
28	Sternoptychidae	68
28	Lyopsetta exilis	68
28	Diogenichthys atlanticus	68
31	Nansenia crassa	65
32		63
33	<i>Diaphus</i> spp. Gobiidae	61
34	Myctophidae	59
35	Ophidiiformes	52
36	Pleuronectiformes	48
37	Chauliodus macouni	47
38	Parophrys vetulus	45
39	Synodus spp.	44
40	Cololabis saira	42
40	Hippoglossina stomata	42
42	Gonichthys tenuiculus	38
42	Hypsoblennius spp.	38
44	Symphurus spp.	36
45	Hygophum atratum	33
45 45	Loweina rara	33
45	Ceratoscopelus townsendi	33
48	Sciaenidae	30
40	SCIdellidae	30

TABLE 2. (cont.)

Rank	Taxon	Occurrences
49	Trachipteridae	28
49	Etrumeus acuminatus	28
49	Peprilus simillimus	28
52	Pleuronichthys verticalis	24
53,	Hygophum spp.	23
54	Cottidae	22
55	Paralichthys californicus	19
56	Microstoma microstoma	18
56	Nansenia candida	18
58	Microstomus pacificus	17
58	Scopelarchidae	17
60	Trichiuridae	16
60	Chiasmodontidae	16
60	Cyclopteridae	16
60	Stomiiformes	16
64	Anguilliformes	
65		15
66	Idiacanthus antrostomus	14
	Pleuronichthys coenosus	13
67	Ichthyococcus spp.	12
67	Clinidae	12
67	Prionotus spp.	12
67	Poromitra spp.	12
67	Agonidae	12
67	Syngnathus spp.	12
73	Pleuronichthys spp.	10
73	Aristostomias scintillans	10
73	Serranidae	10
73	Xystreurys liolepis	10
73	Notoscopelus resplendens	10
78	Brosmophycis marginata	9
78	Zaniolepis spp.	9
78	Pleuronichthys ritteri	9
81	Tetragonurus cuvieri	8
82	Myctophum nitidulum	7
83	Glyptocephalus zachirus	6
83	Macrouridae	6
83	Exocoetidae	6
86	Sphyraena argentea	5
86	Ophidion scrippsae	5 5
88	Oxylebius pictus	4
88	Pleuronichthys decurrens	4
88	Notolychnus valdiviae	4
88	Bathylagus pacificus	4
88	Electrona rissoi	4
93	Atherinidae	
93	Scorpaenichthys marmoratus	3
95	Sebastolobus spp.	3 3 2 2
95	Bathophilus spp.	2
95	Hypsopsetta guttulata	2
23	нурограсска упститаса	∠

TABLE 2. (cont.)

Rank	Taxon	Occurrences
95	Apogonidae	2
95	Diogenichthys spp.	2
95	Scorpaenidae	2
101	Carapidae	1
101	Scopelogadus bispinosus	1
101	Auxis spp.	1
101	Hygophum reinhardtii	1
101	Bothus spp.	1
101	Syacium ovale	1
101	Porichthys spp.	1
101	Anoplopoma fimbria	1

TABLE 3. Pooled numbers of fish larvae taken during CalCOFI cruises in 1953. Counts are adjusted for percent of sample sorted and standard haul factor (see text).

Rank	Taxon	Count
1	Engraulis mordax	103535
2	Merluccius productus	43631
3	Leuroglossus stilbius	37018
4	Sebastes spp.	32123
5	Stenobrachius leucopsarus	15657
6	_	15087
7	Sardinops sagax	
8	Triphoturus mexicanus	14230
	Citharichthys spp.	12110
9	Vinciguerria lucetia	12061
10	Trachurus symmetricus	8113
11	Diogenichthys laternatus	4391
12	Bathylagus wesethi	3029
13	Lampanyctus spp.	3002
14	Unidentified fish larva	2486
15	Tarletonbeania crenularis	2345
16	Bathylagus ochotensis	1865
17	Synodus spp.	1600
18	Scomber japonicus	1339
19	Cyclothone spp.	1248
20	Protomyctophum crockeri	1069
21	Icichthys lockingtoni	895
22	Symbolophorus californiensis	825
23	Pleuronectiformes	811
24	Argentina sialis	714
25	Melamphaes spp.	661
26	Labridae	631
27	Diaphus spp.	554
28	Lyopsetta exilis	495
29	Ceratoscopelus townsendi	466
30	Ophidiiformes	464
31	Parophrys vetulus	422
32	Etrumeus acuminatus	417
33	Paralepididae	399
34	Disintegrated fish larva	393
35	Diogenichthys atlanticus	391
36		384
	Prionotus spp.	383
37 38	Peprilus simillimus	369
	Stomias atriventer	310
39	Gobiidae	
40	Sternoptychidae	296
41	Myctophidae	288
42	Sciaenidae	266
43	Trichiuridae	243
44	Symphurus spp.	235
44	Nansenia crassa	235
46	Gonichthys tenuiculus	229
47	Cololabis saira	221

TABLE 3. (cont.)

Rank	Taxon	Count
48	Hippoglossina stomata	192
49	Chauliodus macouni	191
50	Hypsoblennius spp.	175
51	Pleuronichthys verticalis	165
52	Cottidae	148
53	Hygophum atratum	139
54	Serranidae	135
55	Loweina rara	130
56	Hygophum spp.	123
57	Trachipteridae	111
58	Paralichthys californicus	101
59	Stomiiformes	85
60	Microstoma microstoma	76
61	Nansenia candida	73
62	Microstomus pacificus	72
		68
63	Anguilliformes Pleuronichthys spp.	67
64		66
65	Cyclopteridae	60
66	Idiacanthus antrostomus	59
67	Pleuronichthys coenosus	56
68	Scopelarchidae	54
69	Chiasmodontidae	53
70	Poromitra spp.	52
71	Agonidae	43
72	Clinidae	38
73	Zaniolepis spp.	
73	Aristostomias scintillans	38
75	Syngnathus spp.	37
75	Ichthyococcus spp.	37
77	Notoscopelus resplendens	36
78	Xystreurys liolepis	34
78	Tetragonurus cuvieri	34
80	Brosmophycis marginata	32
81	Glyptocephalus zachirus	30
82	Pleuronichthys ritteri	28
83	Notolychnus valdiviae	27
83	Myctophum nitidulum	27
85	Exocoetidae	24
86	Pleuronichthys decurrens	23
87	Macrouridae	22
88	Scorpaenichthys marmoratus	21
89	Sphyraena argentea	19
89	Electrona rissoi	19
91	Ophidion scrippsae	18
92	Atherinidae	17
93	Bathylagus pacificus	15
94	Oxylebius pictus	13
95	Scorpaenidae	11
95	Bathophilus spp.	11

TABLE 3. (cont.)

Rank	Taxon	Count
97 98 98 98 101 101 104 104 104 104	Diogenichthys spp. Apogonidae Syacium ovale Sebastolobus spp. Anoplopoma fimbria Hypsopsetta guttulata Auxis spp. Scopelogadus bispinosus Bothus spp. Carapidae Porichthys spp. Hygophum reinhardtii	8 6 6 5 5 5 5 3 3 3 3
	Total .	331097

Numbers of fish larvae taken on stations occupied during CalCOFI cruises in 1953. Counts are adjusted for percent of sample sorted and standard haul factor (see text). Average number is given for stations occupied more than once during a calendar month. Unoccupied stations are indicated by a dash. TABLE 4.

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TABLE 4. (cont.)

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TABLE 4. (cont.)

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TABLE 4. (cont.)

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	-	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	oct.	NOV.	DEC
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TABLE 4. (cont.)

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	OCT.	0.0	0.0	0.0	1 1 1		OCT.	0.0	t			0.0	1 1	ı	3.2			000				6.5		0 1		2.2	0.0
	SEP.	1 1 1	1 1 1	11	1 1 1		SEP.	1 1	ı	1 1	I	1 1	1 1	ı	0.0		1	1 1	1	1 1	ı	1 1	ı	1 1	ı	1 1	ı
	AUG.	0.0	0.0	00.0	1 1 1		AUG.	0.0			0.0	0.0	1 1	I	0.0			8 O.		0 0				0.0		0.0	
cont.)	מתר	0.0		000			JULY	0.0	1		0.0	0.0	1 1	ı	0.0		1	00	1 0	Z ° 2			0.0	0.0		0.0	
	JUNE	6.1				cra	JUNE	0.0						0 0												2.4	
Nansenia candida	MAY	000				• a)	MAY	0.0	0					0 0		0 0										22.2	
Nansen	APR.	0.0					APR.	2.8				0 6				0 (0 0	0.0								0.0	
	MAR.	4.00	0.0	0.0	-	ı	MAR.				00.0							0.0			1					000	
	FEB.	0.0	0.0		•	ı	FEB.		0 0		0.0		0.0	1 1	0.0			0.0							1 1	0.0	
	JAN.	0.0				ı	JAN.	0.0			0.0		2.8	1 1		0.0			0			0.0	1 1	ı	ı ı	: 1	ł
		80.0 45.0	00	000	000	0		100		ė.		00	0	o c	010		0	in c	o ro	0			ວິທີ	0	ų c	40.04	0
	STATION	83.0	0.00	000	300	07.	STATION	000	000	07.	10.	10.	13.	13.	17.	17.	17.	20.	20.	20.	20.	23.	22	233	22	127.0	27.

TABLE 4. (cont.)

	DEC.	2.4			ı	1 1	ı	ł	1 1	ı	1		DEC.	1	1	ı	ı	1 1	1	ı	t	ı	l I	1 1	ı	ı	ı	1	l I	ı	ı	1 :	1 1	1	2.4
	NOV.	111	1 1	ı ı	ı	1 1	ı	I	1 i	1	1		NOV.	1	ı	ı	I	1 1	١	ı	ı	ı		l 1	ı	ı	ı	1	1 1	ı	1	1	1 1	1	0.0
	OCT.	0.0		3.2	1	1 1	1	ı	1 1	1	ı		OCT.	1	ı	1	ı	1 1	ı	ı	ı	ı	ı	l I	ı	ı	ı	1	1 1	ı	I	ı	1 1	1	ı
	SEP.	111	1	1	ı	1 1	ı	ı	1 1	1	1		SEP.	1	t	ı	ı	1 1	ı	ı	ı	ı	I	1 1	ı	ı	1	ŀ	1 1	ı	ı	ı	I 1		0.0
	AUG.	000	1			1 1	ı	ı	1 1	1	1		AUG.	0.0				0.1	1	0.0	ı	0.0	0		,	0.0							•		•
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_	JUNE	000									ı	ochotensi	JUNE	2.7		I	1							9.0										•	•
Nansenia crassa	MAY	0.0							•			Bathylagus	MAY					م. در ا			2.8	1	1 1		0.0		١		•			0		÷ <	•
Nanse	APR.	2.4						•				Bath	APR.	3.4		13.3		3						10.1		2.2			4 a				•	•	•
	MAR.	000						•					MAR.	ı	1	ı	ı	1 1	ı	ı	1	ı	1	1 1	1	ı	ı	ı	10			43.6	•		•
	FEB.	0.0		0.0	1	l I	i	1	1 1	ı	ı		FEB.		ı	1	ı	! !	1	1	i	1	1	1 1	1	ı	1	ı			5	103.7		1 1	i
	JAN.	0.0		000	ı	0.0	•	1	il	2.3			JAN.		ı	ı	ı	1 1	ŀ	ı	ı	1	ı	1 1	ı	ı	ı	ı	10	•		5.7			•
		35.0	· ·	5.	ů,	, o	5.	0	ı, L	0	0.			5.	0	0.	90.			5.	1.	ហ	0		0	0	5	٠,	٠	i n	0	0			9
	STATION	127.0	30.	33.	33.	m m	33.	33.	37.	37.	37.		STATION	0	0	0	0	٠,	. n	7	0	0	0	•	0	3	3.	m :		. 0	0	0			81.8

20m200111122001120200111101210111 20m200 4700 20200 0070 00 0 0 0 Bathylagus ochotensis (cont.) FEB. STATION

TABLE 4. (cont.)

				B	athylag	Bathylagus ochotensis	tensis	(cont.					
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
1	10		9				1		1	1		1	ŀ
	ı ır				3.2	6.6	3.5	0.0	0.0	ı	0.0	ı	0.0
7.	. 0	6.1	14.9	0.0	0.0	0.0	0.0			ı		ŀ	0.0
7	5			ŧ		0.0	0.0	0.0	1 4	ı		1	
7.	0	6.4	0.0	1	3.5	0.0	0.0		0.0	ı	2.8	1	14.5
7:	٠,		0.0	ŧ I	15.8	0.0	11.2	1 1	1 1	1 1	1 1	1 1	1 1
97.	٠ د			-	1 6			c C	c	۱ ا	-	. I	2 2
000	ນ ⊂ •	0.0	0.0		0.6		0 0			1 1			0.0
		0 1	10		0.0				0.0	١	0.0	1	0.0
000	on c	0)	0.0	ı		ı	1
00	0			5.4	0.0		0.0	0.0	0.0	1	0.0	ı	0.0
00.	0	3.5		2.9	2.0	0.0			0.0	1	0.0	ı	0.0
00	0			0.0	0.0	0.0		0.0		1	1 0	1	4.0
03.	0	l	ı	ı		2.3		000	•	1 1	•	1 1	
500		1 (1 1	1 1		200			· • I	1) - 	1	٥
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200	ى د	1	1	ı	0.0	9		1	ı	ı	1	ı	ı
		1	ı	1		0.0	0.0	1	ı	ı	ı	t	ı
000		ı	ı	ı	2.6	0.0		ı	ı	ı	1	ı	l
05.	0		3.2	0.0	ı	ı	ı	1	1	ı	1	ı	I
05.	0.			0.0	1 (1 4	1 0	1 0	1 0	t	1 4	ı	1 4
07.	ស			1 4	2.7	0.0	0.0	0.0	000	l I	0.0	1 1	
10.		0.0				•		•		l 1		1	0.0
, 12,	· -				*0		0 1	•		1))) 	1	
13.	0			0				ı		I	1	ı	ı
17.	5	ı					8	0.0	0.0	0.0	0.0	ı	ı
17.	0.	0.0			1.5	0.0		0.0	0.0	0.0	0.0	1 1	1 1
117.0	50.0	0.0	0.0	3.1	0.0	2.8	0.0	1	ı	ı	1	ı	ı
					Bati	Bathulagus	pacificus	cns					
							- 1			- Cotto	5	71014	000
STATION		JAN.	FEB.	MAK	APK.	MAX	JONE	JULX	AUG	- 475C	3	- AOE	DEC.
80.0	70.0	20.8	4.0	3.6	0.0	0.0	0.0	0.0	0.0	1	1 1	H	1 1
	·				0.0	0.0	0.0	0.0		• I	i	l	
					Ва	Bathylagus	s wesethi	hi					
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
10	00					0.0	5.3						1
80.0	0.06	0.0	ı	0.0	0.0	0.0	0.0	8.0	0.0	1	ı	1	ı

TABLE 4. (cont.)

Bathylagus wesethi (cont.)

DEC. NOV. SEP. 0.00 12.6 1.2.5 1.2.5 JULY JUNE 14.3 FEB.

TABLE 4. (cont.)

gathylagus wesethi (cont.) 0.01 6000 0.00% 0.000111010101000 STATION 1033.0 1033.0 10033

TABLE 4. (cont.)

									The state of the s			
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
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17.0 60	1	0			0 (0 (ı	ł	ı	ı	1	1
17.0 65.		•		2			ı	ı	ı	ı	ı	١
17.0 70.		1	ı	16.5	5.0	0.0	1	i	ı	ı	ı	1
18.3 33.		ı	1	ı	ı	ı	ı	ı		ı	ı	2.6
19.0 42.	1			1	1 4		ı	1 (2.0	1 0	f	
20.0 25.	0			6.0				0.0			ı	•
20.0 45.		0.0		0.0					ı	0.0	ı	
20.0 50.	0		0.0		0.0	0.0	0.0	3.5	ı		ı	0.0
20.0 55.	1 (ء ف			1 4	10	ı		1	
20.0 60.	•	•							1 1		1 1	
20.0		0.0	1 1				ບ ທູດ	7 . 7	1 1	7-0	1	
20.0	n I		1 1			•	2.CC	•	1	. 4	ı	
21 0 41		1	ı	•		0	1		2.7		I	•
23.0 37.		- 4	0.0				1			2.5	1	0.0
23.0 45.)	0.0	0.0					0.0	ı		1	
23.0 50.	ı		0.0				3.0		ı	0.0	ı	0.0
23.0 55.	ı		1.4						i	ı	t	1
23.0 60.	ı	ı	1.4	•			ı	1	ı	ı	1	1
27.0 40.	ı		0.0					5.8	ı	0 ° 0	1	0.0
27.0 45.	ı		0.0						ı		1	
27.0 50.	1		0.0						ı	0.0	I	
30.0 35.			0.0						l		ı	
30.0 40.	0	0.0	000				0.0	۵ د ۳ د	1 1		l l)))
30.0			•	4			•	0	ı	3.7	ŧ	
30.0			000					· 1	1	·)	ı	
30.0	C						0.0		ı	1	ı	
33.0 25.	0		0.7	•					1	0.0	ı	
33.0 30.	0		0.0						ı		ı	
33.0 35.	1 (0.0				0.0	3.2	ı		ı	
33.0 40.		0.0	0.0						1	0.0	1	0.0
33.0 55.	1 C	1 1	•	•				C	1	I I	1	0.0
137.0 50.0	0.0	1	1:3	0.0	5.4	0.0	1 1	0	ı	ı	1	•
				Leur	Leuroglossus	s stilbius	bius					
						. !						1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60.0 70.		ı	ı			1			ı	ı	1	1
60.0 80.0	1	ı	ı	0.0	5.2	ı	0.0	0.0	1	ı	ı	1
0.0		ı	i		<u>.</u>				i	ı	I	ı
3.0 55.		ı	1		•	0.0		ı	1	1	1 1	1 1
3.0 65.		I	I	ı	11.4		I	I	ł	í		

Leuroglossus stilbius (cont.)

DEC.	l l	ı	ı	1 1	ı	1	ı	ı	ı	1 1	l i	ı	1	ı	i	ı	1	ı	ı	1 6		ດ ເ	2.3	n a	•	٠	• 4	•	ı	ı	_	•	T .	7.10	, ו	1 1	1 0	207	•	•	2.5	1	i
NOV.	1	i	i	1 1	ı	ı	ı	ı	ı	ı	1 1	ı I	- 1	ı	1	ı	ı	1	ı	1 0			0.0				•	0	ı	1	,	•	-				٠ ا					0.0	1
OCT.		ı	1	1 1	ı	ı	ı	ı	ı	ı	1 (1 1	ı I	ı	ı	ı	ı	1	1	1			0.0	•				1	1	ı	ļ	ı	ı	1	ı	ı	í	ı	1	1 1	l I	1	ı
SEP.		ı	ı	1 1	1	ı	1	ı	ı	ı	t I	ł I	1 1	ı	1	i	1	ı	ı				0.0				•	ı							2.0				•	•		0.0	
AUG.		0.0			000	1	0.0				0.0		•		000	•		0.0			1		0.0					•		ı												7.3	
JULY						,				0				•	46.8	·		0.0			ı		0.0		•	•			1	ı										•	•	0.0	
JUNE					10.5							•									ı		0						•		•	2		4								10.4	
MAY			0.0				•	1		•	0.0	•		5	7.0	•	2		щ.	0	1		0			·.		- 1				7		ς.	÷	٠ ش		٥	•		-i u	27.6	. 1
		'	_												7				•																• • •		4						
APR.	1 4	'n	7.2	0,	5 I		9.9						4,	0.1	. C. #. [F 1	m	9	80		ı	ı	0		7	0	80.2	;	1 6	, 0	ני	46.	3.4	5.1	m,	0.8	6.0	2.9	2	، ف	41.	174.8	
	1 4	'n	7.2	2.0	5 I	-	9		4.	ຕໍ	17.		4.7	0.00	U. 4. L	0.020	6.0 8.3	10.4 6.6	0.0 2.8	.0		1	0	0.0 162.	78.3	12.5 20.	312.0 80.	47.b bU.	1 6	200	- 29.	75.2 46.	9.8 243.4	51.3 65.1	3.1 70.3	48.6 130.8	19.5 30.9	70.4 2.9	.3 167.	09.9	7.9 41.	174.8	
APR.	1 4	'n	7.2	2.0	5 I	- 21.	9		4.	"m"	17.	1	4,7	7.1 1.5.0 66.5	115.5 54.5	**** 0.0201 0.00	4 196.0 8.3	0.0 10.4 6.6	0.0 2.8	.0	ı	1	· 0	.9 0.0 162.	0.0 78.3 7.	8.6 112.5 20.	44.3 312.0 80.	4.0 1442.b bU.	1	138	- 29.	593.6 475.2 46.	19.2 219.8 243.4	10.9 151.3 65.1	36.4 23.1 70.3	59.5 48.6 130.8	84.0 419.5 30.9	69.2 370.4 2.9	26.2 273.3 167.	77.4 309.9 36.	0.1 7.9 41.	58.1 - 174.8	1
MAR. APR.	1 4	'n	7.2	2.0	- 1	- 21.	9		4.	"m"	- 17.	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.0 T./. T. 7. 0.	- 52./ II5.5 54.5	**** 0.0201 0.0CI C.0#	0.19.4 196.0 8.3	0.0 0.0 10.4 6.6	0.0 - 0.8	.0 - 4.9 0.	1	1	-0	.7 271.9 0.0 162.	1.4 0.0 78.3 7.	73.3 38.6 112.5 20.	44.3 312.0 80.	68.4 264.U 1442.b bU.	1	138	- 29.	02.5 1593.6 475.2 46.	605.9 1819.2 219.8 243.4	0.5 10.9 151.3 65.1	94.5 236.4 23.1 70.3	7.2 159.5 48.6 130.8	0.0 784.0 419.5 30.9	3.8 169.2 370.4 2.9	62.1 426.2 273.3 167.	277.4 309.9 36.	- 10.1 7.9 41.	58.1 - 174.8	
. FEB. MAR. APR.	3.6	255.	1.0 17.2	5.0 12.0	0.00	21.	9 0.0	1 - 1	0.0 74.	0.0 3.	5.0 17.	0.0	5.0	1.0 196.0 1.7.1 0.09t 0.1	5.0 - 15.0 TID.5 - 14.5	**** 0.0201 0.0C1 C.0#1 0.0	0.00 17.0 19.4 196.0 8.3	0.0 0.0 10.4 6.6	0.0 0.0 - 0.0 2.8	0.0 0.0 - 4.9 0.	46.0	0°L	0.0 0.0	3.0 8.7 271.9 0.0 162.	8.0 1.4 0.0 78.3 7.	1.0 173.3 38.6 112.5 20.	5.0 879.8 44.3 312.0 80.	0.0 268.4 264.0 1442.6 bu.	1 0 0 0	0.0	0.0	9.0 1102.5 1593.6 475.2 46.	0.0 605.9 1819.2 219.8 243.4	5.0 770.5 10.9 151.3 65.1	0.0 494.5 236.4 23.1 70.3	5.0 37.2 159.5 48.6 130.8	0.0 0.0 784.0 419.5 30.9	5.0 193.8 169.2 370.4 2.9	0.0 262.1 426.2 273.3 167.	5.0 - 277.4 309.9 36.	0.0 - 10.1 7.9 41.	0.0 0.0 58.1 - 174.8	

TABLE 4. (cont.)

Leuroglossus stilbius (cont.)

STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
1					1	1						
7.0 70.	ı	l	ı	123.4	2.0	6.7	ı	ı	ı	ı	ı	ı
7.0 80.	1	1	ı	9			ŧ	1	ı	ı	ı	ı
7.0 90.	ı	ı		m			ı	ı	ı		1	1
0.0 28.	3	19.7			0	0	2.7	ı	I	12.4	ı	26.5
0.0 30.	84.7		23.	77.		10.0	0.0	0.0	ı	0.0	1	9
0.0 35.	ı	ı		ı	3				ı		1	1
0.0 37.	8.6	822.0	303.9	46.3	ı	0.0	0.0	2.8	ı	0.0	ı	39.5
0.0 41.	1	1	-	ł	2				ı		i	
0.0 45.	11.4	313.6	176.3	17.0	65.0	12.6	0.0	3.0	1	0.0	ı	
0.0 50.	1		22.	ı	7			2.5	ı	n°3	ı	
0.0 53.	3.2	19.5	-1	1	1	1	1		ı	ı	ı	1
0 0	,		8	5	-	- 0			ı		1	•
0.0			30.4	70	5.9	9	13.8	0	ı		1	2.9
0.0	. 1				•	34.2	1		ı		1	1
200					Ľ		17.5		ı	0.0	ı	ı
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000	0.0	0	• • •	, c			1	ı	ı	ı	1	ł
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3.0 27.		40.T	1 :			•			l	,	. 1	
3.0 30.	2.		104.0	84	٠ ا (۲			0.0	ı	٠	i	
3.0 35.		ı	ı	37.		9			ı	1 4	1	
3.0 40.	8.3	72.0	ı	8			0.0		1	0.0	1	5.9
3.0 45.			ı	07.				ı	1	ı	ł	ı
3.0 50.	0.0	142.5	201.0	10.			0.0	0.0	ı	0.0	ı	15.3
3.0 55.	•		1	6	-	8		1	1	ı	1	ı
3.0 60.	1	5,3	1	15.1	9.4	18.2	1	1	1	ı	1	ı
3.0 65.	ı)	1	1		9	ı	ı	ı	1	1	į
3 0 70	1	ı	ı	m	ı	0	ı	ı	ı	1	ı	ı
30.2				_	11.2	c	0.0	0.0	ı	0.0	1	0.0
2000	22.2	212.8		1 1					ı	ı	ı	ı
7.00	• 1		Ц		-				ı		ı	-
7.0 35.	0	1	000	10		• 4	•	•	ı		ı	
7.0 40.	7.01	140.0	0	י ר	44		, , ,		ı		ı	
7.0 45.) L		ì	,	b			0	ı	7	ı	198 4
7.0 50.	15°8	14.0	ı				0	•	ı)))	ı	1
7.0 55.		1 6	ı		0	1	ı	1		ı	ı	1
7.0 60.	0.0	12.8	1	ů			ı	ı	ı	ı		
7.0 70.	ı	i	i	7	7.8		ı	ı	I	1	I	1
97.0 80.	1		ı	e,				1	ı		ı	1 0
00.00		45.1		25.	5				ı	0.0	1	2.2
00.00			2	ŀ.					ı		ı	T . 8
00.00 35.		ı		2				0.0	ı		ı	1 '
00.00 40.	2.7	25.8	11.4	ä					i	0.0	ı	4.6
00.0 45.	1	ı	1	3,		0			ı		ı	1 4
100.0 50.0	9.5	26.6	0.0	36.7	6.6	12.3	0.0	0.0	ı	0.0	t	3.0
00.00				5		0			ı		ı	
00.00	2.9	6.5			2				1	0.0	1	0.0
00.00			e			- 6			١		ı	-

TABLE 4. (cont.)

Leuroglossus stilbius (cont.)

DEC. NOV 0 000 0 JULY JUNE 0.00 1.10 APR. 24.0 24.0 24.0 25.0 26.0 27.0 28.8 28.8 28.8 28.8 29.0 20.0 0.0 3.75.8 3.75.8 8.35.9 1.1.1 1 0.00 0.00 114.8 222.3 3.88 0.00 0.00 0.00 115.7 12.7 2.8 STATION

TABLE 4. (cont.)

					Leuroglossus		stilbius	(cont.)			5		1 0
ON JAN. FEB. MAR. APR.	AN. FEB. MAR. AP	MAR. AP	AR. AP	APR.		MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.)
0.0 0.0 0.0 0.0	0 0 0 0 0 0	.0 0.0	0 0			16.2	0.0	0.0	0.0	0.0	0.0	1 1	0.0
5.0 0.0 50.2 28.4 22.	0.0 50.2 28.4 22.	0.2 28.4 22.	8.4 22.	5					0 0			1	
0.0 0.0 52.0 15.3 5.	0 52.0 15.3 5.	2.0 15.3 5.	5.3	ر د د				•		1 1		1 1	
22°U - 10°U - 10°U	0.0 A OF			c						ı		1	
0.0 0.0 11.8 - 0.	.0 11.8 - 0.	1.8 - 0.	0					0.0		ι		ı	
7.0 0.0 0.0 2.6 5.	.0 0.0 2.6 5.	0.0 2.6 5.	2.6 5.	5		0				ı		ı	0,
0.0 - 2.7 14.4 26.	2.7 14.4 26.	.7 14.4 26.	4.4 26.	، ف						1 (31.3
5.0 - 3.0 3.2 12.	3.0 3.2 12. 9.1 0.0 0.	3.2 12.	0 0.	, 0				0.0	00.0	1	0.0	1	0.0
5.0 0.0 0.0	0.0 0.0	0.0	0 0	0						1		1	
$\frac{4}{2}$, 0.0 0.0 0.7 17.	.0 0.0 0.7 17.	.0 0.7 17.	0.7 17.	2.				000		1 1	000	1 1	
0.0 = 2.50 5.50 = 0.00 5.00 5.00 5.00 5.00 5.00	2.8 59.5 5.7	7 16.4	6.4				0 0			1	0	ı	•
0.0 - 0.0 2.	0.0 0.0 2.	.0 0.0 2.	0.0							ı		1	
0.0 - 0.0 1.7 8.	0.0 1.7 8.	.0 1.7 8.	1.7 8.							ı		1 1	
5.0 0.0 0.0 21.4 0.	0.0 21.4 0.0	.0 21.4 0.	1.4 0.	•					0 (ı ı	000	1 1	0.0
$5.0 - 0.0 \ 0.0 \ 17.4 \ 21.$	0.0 17.4 21.	.0 17.4 21.	7.4 21.					0.0	0.0	1	•	1	
0 (0.0 4.7 2.	.0 4.7 2.	7 2.0			7°0				1 1	0.0	1 1	0.0
0.0 0.0 0.0 0.0	0.0 0.0 0.0	0.0	0							ı		1	
5.0 0.0 0.0 0.0 1.	0.0 0.0 1.	0.0 0.	0 8						000	1 1	0.0	1 1	
5.0 - 1.2 3.	1.2 3.	1.2 3.	.2							ı		l	1
5.0 0.0	-0.0 0.0	0.0	0.					ı	ı	i	ı	1 1	1 1
5.0 0.0 0.	0.0 0.0	0.0	0.0	0				1 0		1 1	1 1	1 1	۰ ا
0.0 0.0 - 4.0 38.	.0 - 4.0 38.	2 K 38.	30.00	ء د					7.7	I I	1	1	1 1
	0 - 4 - 0	4 1 0	.07			0 0	00	ı	ı	1	ı	ı	1
5.0 1.2 0.	- 1.2 0.	1.2 0.	.2 0.					ì	1	ı	t	ı	ı
						Stomij	iformes						
ON JAN. FEB. MAR. APR.	AN. FEB. MAR. AP	MAR. AP	AR. AP	APR.	. 1	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
0.0 0.0 0.00	0.0000000000000000000000000000000000000	0.000.0000.0000000000000000000000000000	000			000	2.9	000	2.30	1 1 1	1 1 1	1 1 1	1 1 1
45.0 0.0	.0 0.0	0.0	0.0			• •	•	•	•	ı	1	ı	ţ
0.00	.00	-00	00			20	וע	1 1	ιı	1 1	1 1	1 1	1 1
45.0 2.		- 2	2.				1	1	ı	ı	I	ı	ı
5.0		00	00				0.0	0.0	10.9	1 1	1 1	1 1	1 1
0.0	•0	•	•	•		ı							

TABLE 4. (cont.)

				Sto	miiform	Stomiiformes (cont.)	it.)					
TA	JAN.	FEB.	MAR.	APR.	MAY	JONE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
97.0 80.0 100.0 60.0 107.0 45.0 113.0 50.0 120.0 80.0	0.00	0.0	0.0	0.0000	0.0 0.0 0.0 0.0	000000	3.1 	0.0100	11111	0.00	11111	0.00
STATION	JAN.	FEB.	MAR.	APR.	Cyclothone	one spp	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
800.00 1300.00 880.00 1300.00 1300.00 1300.00 1300.00 1300.00 1300.00 883.00 460.00 887.00 445.00 990.00 1390.	0 0 00	0 0000	0 0000	0.40 8 00 w w 0 0 0 0 w W W W W W W W W W	426.000000000000000000000000000000000000	0000000	8 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1		000	111111111111111111111111111111111111111	4. 000 1 1 1 1 1 1 1 1 1	0 000
3.0 40.0 50.0 50.0 3.0 60.0 60.0 60.0 60.0 60.0 60.0 60	2.4.00000000000000000000000000000000000	22.5 22.5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7.0051111 0.0000	00 1 00 00 00 00 00 00 00 00 00 00 00 00		22.0 22.0 20.0 00.0 00.0 00.0 0.0 0.0 0.	7.1	000000000000000000000000000000000000000				0.0000000000000000000000000000000000000

TABLE 4. (cont.)

1970 1970					7760	(tames) add amorration	21.44	/					
95.00 95.0	TATI	AN	FEB.	A.	APR.	MAY	JUNE	JULY	AUG.		OCT.		DEC.
100 100	03 0 55			 	1 4	1 4			1	1	1	1	
19.00 19.0	03.0	1	ı	ı				ı	1	1	ı	1	1
95.00 95.00	03.0 80.	ı	1	1		2		ı	ı	ı	ı	1	ı
93.00 93.00	03.0 90.			1		7.		ı	ı	ı	ı	ı	ı
90.00	05.0 35.				ı		1	ı	ı	ı	1	í	ı
900000 9000 9000 9000 9000 9000 9000 9	05.0 40.				ŧ	ı	1	ı	ı	ı	ı	ł	ı
90.00 90.00 13.8	05.0 50.				ı	ı	ı	ı	ı	1	ı	ı	ı
93.0 93.0 93.0 93.0 93.0 93.0 93.0 93.0	05.0 70.			0	ı	t	1	ı	ı	ı	ı	I	ı
90.00 95.0	05.0 80.		ł	1.	1	1	1	1	1	ı	1	ı	1
90.00 45.00	07.0 35.		ı						0.0	ı	3.5	1	0.0
90.0 55.0	07.0 40.	1	ı	ı					0.0	ı	0.0	ı	0.0
90.00 55.00	07.0 45.	1	ı	ı				ı	ı	i	I	ı	ı
90.00 65.00	07.0 50.	1	1	ı			5.	ı	1	1	ı	1	ı
90.00	07.0 55.	ı	1	ı			7	ì	ı	ı	ı	1	ı
07.0 20.0 0.0 </td <td>07.0 60.</td> <td>ı</td> <td>ı</td> <td>ı</td> <td></td> <td></td> <td></td> <td>ı</td> <td>1</td> <td>ı</td> <td>ı</td> <td>ı</td> <td>I</td>	07.0 60.	ı	ı	ı				ı	1	ı	ı	ı	I
107.0 80.0 - - 36.4 11.3 - - 36.4 11.3 -	07.0 70.	ı	ı	1	0	0		ı	ı	1	ı	ı	ı
107.0 90.0 2.8 0.0<	07.0 80.	1	ı	1	9	÷		1	ı	ı	ı	1	ı
10.0 55.0 2.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	07.0 90.	ı	1	ŧ	9	2		ı	1	I	1 (1	1 (
10.0 55.0	10.0 50.			0.0				0.0	0.0	ı	3.9	ı	2.8
10.0 66.0 0.0 0.0 12.8 0.0 0.0 0.0 3.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	10.0 55.	ı	1	ı					1	I	1 4	ı	1 1
10.0 65.0	10.0 60.			7					3.5	ı	0.0	1	0.0
10.0 70.0 0.0	10.0 65.		ı	1 9	1 (ı	ı	ı	ı	1	l
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	10.0 70.		ı	2.8	2			ı	ı	ı	ı	1	ļ
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	10.0 80.		ı	1	•			ı	ı	ı	1	1 :	1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	10.0 90.	ı		1 9					0	1 6	c 1 c	1 1	c
13.0 65.0	13.0 35.	ı			•		•			0.0		l I	•
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	13.0 40.	ı							0.0	1 1	0 1	1 1	0.1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	13.0 65.	ı	1				•	1 1	l I	1 1	1	1	. 1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	13.0 /0.						0		0	0	1 66	ı	ı
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1/.0 40.				•		•		· • 1	• 1	1 . 1	1	1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	17.0 50.				•	•	•	ı	ı	i	ı	1	1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	17.0 55.			• •				ı	ı	ı	i	1	ı
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	17.0 60.	1			4			ı	ı	ı	ı	t	ı
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	17.0 70.	ı			5				1 -	ı	1	i	1 4
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.0 45.		•		0				0.0	1	9.0	1	0.0
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.0 50.								3.5	ı	0.0	i	0.0
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.0 55.						5		1 (1	1 9	l	1 9
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.0 60.	•	0						J. J.	i I	۲۵°۶	1 1	0.1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.0 65.							c 1 C	C	ll	3.6	ı	0.0
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.0		, r	1 1	٠			200	4	١		1	2.5
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.0		•	1				11.2	2.8	ι		1	
$23.0 \ 50.0$ $ 3.0 \ 0.0 \ 0.0 \ 0.0 \ 0.0 \ 0.0$ $ -$	23.0 40.	1						0.0	0.0	ı		ı	
23.0 55.0 0.0 0.0 2.8 0.0	23.0 50.	1						0.0	0.0	ı		ı	
	23.0 55.	1	1					ı	ı	ı	l	ı	I

TABLE 4. (cont.)

	, DEC.	0 0 0 0 0		, DEC.	0.00.111011	7. DEC.	0.00
	NOV			NOV	11111111111	NOV	1110011111
	OCT.	4.0 0.0 0.0 7.1		OCT.	#	OCT.	0.0
	SEP.	11111111111		SEP.	1111111111	SEP.	00
	AUG.	0.0 64 60 10		AUG.	3.2	AUG.	2.00 1 .00 .00 .00 .00 .00 .00 .00 .00 .0
ont.)	JULY	22.7	spp.	JULY	0.0 0.0 0.0 - - 0.0 0.0	JULY	0.00 0.00 0.00
o) dds	JUNE	000000000000000000000000000000000000000		JUNE	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JUNE	0 000 000
Cyclothone spp. (cont.	MAY	000000000000000000000000000000000000000	Ichthyococcus	MAY	.5 0.0 0.0 0.0 0.0 2.8 0.0 9 0.0 5 0.0 5 0.0 6 0.0 7 0.0	MAY	10.8 10.8 9.1 0.0 0.0 3.1 24.6 59.2
$CycI_0$	APR.	000000000000000000000000000000000000000	Ic	APR.	2.5 0.0 0.0 0.0 0.0 1.5 1.5 0.0 0.0	APR.	0.0 0.0 0.0 0.0 0.0 25.9
	MAR.	400000000000000000000000000000000000000		MAR.	111402000	MAR.	0 00 0
	FEB.	22.7		FEB.	0.0000000000000000000000000000000000000	FEB.	0.0
	JAN.	00 0		JAN.	0.000000	JAN.	0.0
	NO	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0		NO	120.0 27.0 83.0 33.0 50.0 70.0 70.0 34.0 35.0	NO	100.0 145.0 160.0 39.0 130.0 152.5 160.0
	TAT	123.0 127.0 127.0 130.0 130.0 133.0 133.0		E	80.0 93.0 103.0 110.0 1110.0 1117.0 1137.0 1330.0	ATI	

TABLE 4. (cont.)

	NOV. DEC.			1	1	!			•		0.0	2			1			0.00		ı !	1	1	1	1	1	1	1	1	1	1	1		1 1	 				F 7	1.0			1	1	1	0.0		ı	1	1	1
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	SEP.		ı	ı	ı	1	ı		i	ı	1	ı	ı	ı	ı	ı		ı	ı	1	1	1	1	1	1	1	1	ı			ı	!	1	I	l	ı	l 1	l	I 1	ı	I	ı	ı		2.8	ı	ı	ı		•
	AUG.		ı	ı	ı	ı		•	0.0				•		ı			10°1		ı	ı	ı	ı	١	ı	ı	,	ı	1	1	ı	1	ı	ı	1 6				0.0	1 0	133.4	ı	I		0.0	7.4	ı	1		ı
(cont.	JULY		i	ı	1	ı	0	יי	T • /		0.0				ı		•	0.0	٠	ı	ı	ı	1	ı	ı	1	1	ı	ı			I	ı	•		0.0	0.0		0.0		0.0	1	ı		0.0		1	ı		1
lucetia	JUNE	1	7			-							- 0	17.8			0					2.		1	ı	ı	ı			ם מינו) (,,		ı		•	0.0	٠			٠		1					0.0		
	MAY									0			- 6	18.2	•			0				6	23.9		ı	ì	1		8	•	٠						0.0		0					0						0
Vinciguerria	APR.	1			- 0		•	0					- (0.0		1						7.9		t	ı	ı	ı			· ° c	٠		510		٥	4	0.0			0	•									
	MAR.		ı	ı	1	ı	A		0.0		0.0				ı	ı		ı	ı	ı	1	ł	ı			0	טע	0	l	i		i	i	I			8.7		7.8		15.4	4	ì			- 4				
	FEB.		1	0.0	ı	ı		0.0	0				, ,		ı	ı	I	ı	I	1	1	ı	ı				· 1		I	I	l	I	ŧ	i		7.6			9.4		0.0	ı	ı					0.0		
	JAN.		1	0.0	1	1		0.0					,	70.4))		l	ı	ı	ı	ı	ı	ı		, r	•		°	1	ı	ı	1	ı	ı	ı	ł	ł		2.6		0.0			ı	1	ı	1	8.4		ŀ
	ON		80.	90.	70.	00		40.	20.	55.	60.	70.	8 0	000	000	000	200	35.	40.	55.	70.	80	06	V	20.5		000	0 0		000		000	70.	80.	90.	35.	40.0	4 t	500	55.	60.	70.	80.	90.	35.	40.	45.	50.	00	900
	I E		'n	7	7		- 0	000	00	00	00	00	00	000	000	200		03.	03.	03.	03.	03	03	200	0.0	. עט		000	500	07.	000	07.	07.	07.		10.	110.0	OT.	10.	10.	10.	10.	10.	10.	13.	13.	13.	13.	¢	13.

NOV SEP 0.0 0.0 0.0 0.0 0.0 10.6 1121.1 1121.1 1121.1 1129.8 1129.8 1131.0 204.0 204.0 204.0 204.0 204.0 204.0 206.0 207.0 (cont. JULY Vinciguerria lucetia 0.00 110.00 110.00 0. 0.00 FEB. 0.0 0.0 0.0 0.0 0.0 17.3 131.1 131.2 13.2 13.2 13.2 13.2 13.2 JAN. STATION

TABLE 4. (cont.)

Vinciguerria lucetia (cont.)

STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
37.0	5.	1	ı			0.0	0.0	ı	į	1	J	ı	ı
97.0			1			-	-	1	ı	ı	1	1	1
000			ı		-	1	•	ı	ı	1	ı	ı	ı
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37.0	•	2.3	1	9	÷			ı	I	I	ı	ı	ı
37.0	S.	1	ı	2.	10.		i	i	ı	1	1	1	1
37.0	0	1	1	62.	5	9.5	ı	ı	ı	1	1	t	ı
40.0	5		1	ı		ı	ŀ	1	ı	ı	ı	ı	ı
40.0		9.01	ı	ı	ı	ı	ı	1	ı	1	ı	ı	ı
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43.0			ı	I	l)							
43.0	0	'n	ı	1	ţ	I	ł	ı	ı	ı	1	i	ı
43.0	5		1	ı	\$	ı	1	ı	ı	ı	1	ı	I
47.0	_	V	1	ı	1	1	1	1	ı	ı	ı	ı	ı
47.0			ı	ı	ı	ı	1	ı	ı	ı	1	ŀ	ı
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0.00	ות		ı	ı	ı	ı	l	1	I	l	!	1	ļ
50.0	ċ	3	ı	ı	ı	ı	ı	ì	1	ı	ı	I	ı
50.0	0		ı	ı	ı	1	1	ı	1	ı	ı	ı	ı
50.0	40.0		ı	1	ı	ı	ı	ı	ı	i	ı	ı	ı
					0,	Sternoptychidae	tychida	a					
i E		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
	0	1	1	1	4 4	1	1 1	1 4	1 4				
		0	10	8	0			8	0	1	1	1	ı
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T 0.0	3					0							1 6
3.0	3									0.0	0.0		
3.0	0			0.0					0.0	ı	i	0.0	6.9
7.0	5										ı		
7.0	0		-		- 0		- 0	- 0		0.0	ı		
	α	•	•)	•			-	•			
					8			· c	0	ı		1	2.9
	·	•	0	0		0		0	0	t	•	ı	•
1000	,					0				1			
000					0	•	,				•		•
٠. د د	O	0		0.0						ı	0	ı	
3.0	0			ı				ı	ı	i	ı	ı	į
7.0	2	٠								ı		ı	
97.0	0		0		0					i	0.0	ı	
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0	80.0	0.0	0.0	3.0	0.0	0.0	6.3	0.0	0.0	ı		ı	0.0
0.00	0	. (. (•			1	ı	ı	
03.0			ı	1			•	ı	ı	ı	ı	ı	1
03.0		ı	ı	1	•		•	1	ı	ı	,	ı	1
20.00	• • •				1			1		1	1	ı	ł
000) (, 0		•	l '				1 !		1	ı	
05.0	÷				t	ı	l	1	1	I	ı	I	ı

TABLE 4. (cont.)

					Ster	Sternoptychidae (cont.	idae (c	ont.)					
STATION	 	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
05.	0.				ı	ŧ	ł	ł	ı	ı	ı	1	1
05.	0		0.0		ı	ı	ı	ı	i	t	ı	I	ı
05.	0	æ .	ŧ	0.0	ı	ı	ı	ı	ı	t	ı	ı	ı
05.	0		1		1 0	1 9	ı	ı	ı	ı	ı	ı	ı
107.0	80.0	1 1						2	0	1 1		1 1	
		-	000		0			0.0	0.0	ı	0	ι	0.0
10.	. 0	2.1	•	0.0	0.0	0.0	0.0	1	1	ı		ı	
13.	5							ı	1 4	1 4		ı	ı
17.	5.	ı						0.0	2.4	0.0	0.0	i	ı
17.	0	ı			4 - 4			ı	ı	ı	ı	1	l
17.	0	1 0				•			1 0	ı	1 0	1 !	ic
20.										1	•	1	
20.	•	0.0	2.0	•	٠					۱ ۱)	
20.	•				e					1	•	1	
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200		1				•	0 1		8 6	1		ı	
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27.	5	1	2.7						0.0	ı		1	
27.	0	ı								ι	ı	ı	ı
30.	0	0.0	- 6	- 6	•			0.0	0.0	ı	4.1	ı	0.0
30.	5									ı	I	ı	1 9
30.	0	3.1		•						1	1	1	0.0
m	٠ د					•				1 1	c 1 C	l	
25	٠ د	0.1	•		•	•				ı	•	1	ì
	. 0	ı	1		• •		1	1	1	ı	ı	ı	ı
37.	0	0.0	1	1.3	0.0		0.0	0.0	0.0	1	ı	ı	0.0
37.	0.		1					ı	ı	ì	ı	ı	ı
					Chi	Chauliodus	s macouni	ni					
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60.0	10				0.0	0.0		5.5	0.0		1 1 1	 	
. ~		ı	ı	ı						1	1	ı	ı
7	5.	1	1	1		ı		4.1		ł	ı	1	ı
0	5.	ı	ı	ı		ı				ı	ı	ł	ı
0.	0	ı	1	ı	0.0	•		5.9	5.5	ı	ı	ı	ł
0.0	90.	1	ı	1	•	0.0		1 1	1 1	1 1	1 1	1 1	1 1
0.0	D	1	1 1	1 1	1				1	1	ı	ı	1
80.0	70.0		0.0	•	0 0		2.7	0.0	0.0	ı	ı	ı	ı
0:		2.3		0.0		0.0				ı	ı	ı	ł

TABLE 4. (cont.)

	DEC.	1000 00 00000 1 4 0000000	DEC.	
	NOV.	00000000	NOV.	1111111111
	OCT.	0 00000 0 00 00000	OCT.	000
	SEP.	0.00.00011111111111111111	SEP.	11111111
	AUG.	000000000000000000000000000000000000000	AUG.	22.3
(cont.)	JULY	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	JULY	2.7.7.7.7.7.4.4.0.0.0 0.00.00.00.00.00.00.00.00.00.00.0
couni	JUNE	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JUNE	0.0000000000000000000000000000000000000
Chauliodus macouni	MAY	0.0 0.0 4.3 4.3 1.5 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	MAY	000000000000000000000000000000000000000
Chaulic	APR.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	APR.	000000000000000000000000000000000000000
	MAR.	000000000000000000000000000000000000000	MAR.	000 000
	FEB.	000000000000000000000000000000000000000	FEB.	000
	JAN.	70000000000000000000000000000000000000	JAN.	0.00
	NO	100 655 655 655 655 655 655 655 6	ON	100.0 100.0 139.0 139.0 80.0 45.0 45.0
	STATIO		ATI	80.0 80.0 90.0 93.0 93.0 93.0 100.0

TABLE 4. (cont.)

. APR. MAY JUNE JULY AUG. SEP. OCT. NOV.	0 0.0 0.0 2.7 0.0 0.0	0.0 7.2	2.6		'n	.6	.5 0.	4.	0	Bathophilus spp.	. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.	9.	1	Stomias atriventer	. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC	0.0 0.0			4 0.0 0.0 0.0 0.0 0.0 0.0 - 0.	7 0.0	0 2.8 0.0 0.0 0.0 0.0 0.0 - 0.0 - 0.0			.0 0.0	.0 0.0 2.	1 1	1	9	.0 3.1	ı		0.0 3.2
	0	1	ı	ı	ı	1	ı	ı	I			**	ı			0	<u> </u>	0	00	00	o	°c	· I	1	1 1	1	ı	1	1	ı	1	
	.7 0		1	1	1	1	1	0.0	1	s spp.				iventer		m c		0	0.0	.0	0	ء د				1 1	1	1				_
	1 4		•					ı	ı	athophilu				omias atr												1 1	1	ı		1	•	
APR.					ı				1	B	APR.		0.0	Sto			6		•				0 0	0		1 1	1 1	ı		ı		•
MAR.	0.0	•	ι	ı	ı	ı	ı	ı	0.0		MAR.	 	1		MAR.					2.7			1	ı	1 4		0.0		ı	ı		1 0
FEB.		1	ı	ı	ı	1	ı	ı	ı		FEB.		ı		FEB.			0 0		000			1 1	ı		3.2		ı	ı	ı		1 6
JAN.		• 1	ŧ	1	1	ł	ı	1	4.6		JAN.		ı		JAN.			6 6		0.0			1 1	1						ı		1
	100	120.0	38.	45.	53.	60.	45.	90.	0		ATION	153.	0.160.0		ATION	90.	000	35.	50.	0 40.0	70.	80.	40.	70.	80.	40.	70.	80.	50.	65.		90.

TABLE 4. (cont.)

Stomias atriventer (cont.)

STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
	H		1										
13.	5	1	ı		8 1			ı	ı	l	ı	I	ı
~	_	2.8	0.0		0 0			í	ı	1	ı	ı	ı
	i L	١.			1.5	- 0		ı	ı	ı	ı	•	ı
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. 4	•	ı	1		. 1			ı	ı	2.0	ı	ı	ı
120	5 u	1 1		0				ı	ı	1	ı	t	ι
17	o c	ŀ		•				ı	ļ	ı	1	ı	ı
17.		ı	0.0			0	•	,	ı	ļ	1	ı	ı
17.	9											ı	
20.	0			0.0		0				I			•
20.	0			1						ı		ı	
20.	0	0.0		t				0.0	0.0	î	0.0	1	2.5
20.	0			ŧ						ı		ı	2.5
30		1		- 0						ı		ı	0.0
, ,	کا د	ı		5.2				0.0		1	ı	1	ı
, ,		ı				•				1	0.0	ı	0.0
, ,	۰ کا د	ı	0				•		ı	1		ı	
, ,	, c	ı	ł					1	ı	ı	1	1	ı
, ,	Э ц	. 1		0		•				ı	1	1	ı
. 17	o c	1	0.0							ı	0.0	ı	0.0
. 17	÷ 0	I					0			1)	ı	1
27.	٠,	1 9				•	0			ı	0	ı	0.0
30.	ç.	0.0	6							ı	•	1	
30.	· 0	ı	2.8					•	•	۱ ا	0	ı	0
30.	0	ı				0				1	0	. 1	•
30.	5.									ı		1 1	0
30°	0	0.0						0.0	0.0	ı		'	•
33.	0	0.0	0.0	4.9	0.0	8.0	0.0		0.0	ı	0.0	1 1	0.1
33.	5	ı	1					ı	i	I	ł	l	l
33.	0	2.4	ı				•	ı	I	ì	I	ı	ł
33.	5.	i	1	0			ı	١	I	ı	ı	ı	1
33.	0	1	1					t	ı	ı	ı	I	1
37.	5	ı	ı					ı	ŧ	ı	1	ı	ı
37.	2	ı	ı				0.0	ı	ı	ı	ı	I	i
37.	2	ı	ŧ				ı	ı	ı	1	ı	ı	ı
137.0	0.09	1	i			. 0	ı	1	ı	ı	ı	1	ı
						Parale	Paralepididae						
										46.00	 	4014	
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	SET:	NOV.	DEC.
73.	0		1	ı		ı				1	1	ı	1
80.0	60.09	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	t	ı	ı	ı
0	5	1	ı		8	1		1	ı	ı	ı	ŧ	ı
0	0		4.3						2.9	ı	ı	ı	l
0.0	90.	0.0	ł	0.0	2.8	0.0	•	0.0	0.0	i	ı	ı	I
0	00		1							ı	ı	1	1 1
0.0	10.	ł	ı	ı			ı	ı	ł	ı	ı	ı	I

TABLE 4. (cont.)

DEC.	i 1	ı		0.0		ı	0.0			٠ ٥٠	•	0.0	ı	ı	ı			0.0		ı		2,0		-	0.0			1	1 1	ı	ı	1	ı	1	1 1			000
NOV.	1 1	ı		0.0	•	1		0.0		0		ı	i	ı	ı	ı	I	1 1	ı	ı	ı	1 1	l I	ı	1	1	1	ł	1 1	ı	1	1	ı	1	1 1	1	ı	1 1
OCT.	1 1	1		0.0	•	1	ı	ŀ	ı	1 1	1	0.0	ı	ı	I					ı		0.0					3.4	1	1 1	ı	1	1	ı	1 :	1 1		•	
SEP.	1 1	1		0.0		ı				0.0	•	t	ı	ı	I	1	ı	l i	ı	1	ı	1 1	1 1	1	1	ı	1	I	1 1	ı	ı	ı	ı	1	I I	1	1	1 1
AUG.	1 1	ı		0.0		ı			•		•	0.0	ŀ	ı	1			•		ı		7.2						ı	1 1	ı	ı	1	ı	i i	1 1			3.0
JULY	1 1	1	1 (000) 	1					•	0.0	ı	ı	ı				•	ı		0.0		- 0				ı	1 1	ı	ı	1	ı	L	1 1			2.7
JUNE	1 1	ł		00										2.9	ı				0 0		0.0							•		•		•						0.0
MAY	2.4			0	•					•								•		•		0.0								•	• •	•			•	0 0		000
APR.	0.0			0.0															• •		0.0	•	•							•	•	ı		•		0 0		
MAR.	1 1	ı		0.0	•	ı				000	0	0.0		0.0	ı		0.0		ı	ı		7.0	•	4	0.0		ı	1	1 1	ı	1		2.9	1	I 1			12.8
FEB.	1 1	ı		ص د د	•	ı				•	0		0.0		ı			000		ı		0.0		-	0.0		ı	ı	1 1	1	ı	0.0	1	I	ł (000
JAN.	1 1	1		0.0		1		0.0					3.2		ı			ء د د		ı		0.0		- 6	0.0		ı	I	1 1	1	ı	4.2		ı	1 1	1		00.0
ON	120.0	53.	60.	Ф и	n c		0	5	ų,	٦.	. 0	Š	<u>.</u>	80.	5.	60.	0			0	0	0	٦	, 0	0	0	0.	٠ د د	, c			5	0	0 4	0 c		0	50
STATIC	80.0	0	0	د		, (3	5.	7:			0:	0	0	0	0	ო :	:-			00	000		000	00.	00.	03.	200	200		030	05.	05.	07.			10.	100

TABLE 4. (cont.)

Paralepididae (cont.)

STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
			1	1						1			
13.	5.	1	0.0	0.0		0.0	0.0	0.0	8.5	0.0	0.0	ı	0.0
13.	5.	ı				0.0	0.0	•	ı	ı	ı	1	ł
13.	0		2.6					1 (1 9		1 4	i	ı
17.	0	0.0						0.0	0.0	0.0	3.2	ı	ı
17.	5.	ı	1					i	i	ı	ı	ı	i
17.	0	ı	0.0					ı	ı	ı	ı	i	ı
17.	0	ı						ı	ı	ı	ı	1	
20.	0	0.0	0.0			0.0	0.0	0.0	0.0	ı	7.1	ı	0.0
20.	L.	•	•	0.0				1		1		ı	1
200								0.0	0.0	1	0.0	ı	
			0	•	•			0.0	0.0	1		١	0.0
, , ,		0	0						0.0	ı		ı	
,,,	•	1 1	0.4	0						ı		ı	
,,,	٠ د د		0	٠	•					ı		1	
, , ,	ი u	0.0						•	•	ı	0	ı	•
ეი	n c	c 1 C	c 1 c		0					ı	0.0	ı	0.0
133.0	45.0	•	•	7.4	0.0	2.1	000	ì	ì	ı	•	ı	•
						Scopela	Scopelarchidae	41					
								1		The state of	5	MON	757
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	oci.	NOV.	DEC.
80.	00		1		0.0	0.0			2.3	1	ı	1	1
0.00	60.	0.0		0.0	0.0	0.0		0.0		ı	2.7	ı	0.0
00	0					0.0				ı	l	ı	2.4
00.	00.	1	i	ı	ı	ı				ı	1 4	ı	1 0
03.0	35.	1	ŀ	ı		2.9	0.0	0.0	0.0	1	0.0	ı	0.0
03.	5	ı	ı	ı				1	ı	1	ı	l	
03.	0	ı	ı	ı	2.9			I	1	ı	1	ı	1
03.	0	ı	ı	1			2.8	ı	ı	ı	í	ı	1
03.	0	ı	ı	ł		0.0		ı	t	ı	l	ı	i I
07.	0	ı	1	ı	0.0		ı	1	ı	1	1		1
07.	0	ı	ı	1				8 1	1 1		l I	1	1 1
10.	٠ د						, , , , , , , , , , , , , , , , , , ,	1 4		i	0	1	0
10.	· ·			0.0		0.0	٥٥) C		1 1		ı	
20.					0.0	•	ο α ο α	7 - 7	•	ı	0 1	ı)))
130.0	60.0	0	0	0.0	0-0	0-0	0.0	0.0	0.0	1	1	ı	2.4
•	•		•										
						Mycto	Myctophidae			1			
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60.0	55.	ı	1	1	10.3		0.0		0.0	1	ı	ı	1
63.0	52.0			1 4	0.0	0.0	0.0	0.0	4 .0	ı	1 -	t I	l I
	÷	0.0	1.1	0.0	0.0		0.0		0	ı			

FEB. MAR. APR. APR. JUNE JULY ADG. SEP. OCT. NO. ADG. A													
10 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	JAN.			MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
10		!					•			ŧ	ŀ	ŀ	1
12			1 1	•						1 1	1 1	1 1	1 1
10 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	ı		1	ı	•			ı	ı	ı	1	ı	ı
10.0				. '							ı		1 0
12.6 12.1 10.0				•							1 1	0.0	0 I
12. 10. 0			•	ı	•						1		ı
10 12.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0				ı	1				1 '	ı		ı	1 4
12.1				0.0	0.0			•	6.4	ı	•	1	0.0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•			12.1	•		•	1 1	1 1	1 1	1 1	1 1	i t
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1 1		l I	1 1	•		1	1	1	ł	ı	ı	1
.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1		ı	ı			i	1	ı	ı	ι	ı	ı
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.0				•						1	•	ı	0.0
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$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1		ı	1			•	1	ı	ı	1	ı	1
.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1		ı	ı			•	1	1	I 1	! (1 (1 1
.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ı				•					l I		ı	
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.5 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	1				•	•		0.0	0.0		4	1 1	0 1
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11.4 25.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ı		ı	0.0				ı	ı	1	ı	I	I
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$\begin{array}{cccccccccccccccccccccccccccccccccccc$				•	٦. د	•	•	• (0 0	1		1	
$\begin{smallmatrix} .0 & 1.7 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & - & - & - \\ .0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & - & 3 \end{smallmatrix}$	1		• •	• 1	. 0					ı		ı	
.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0										ı	1 (ı	0.0
			•							ı		1	

TABLE 4. (cont.)

Myctophidae (cont.)

$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
55.0 0.0 1.0 1.4 0.0 0.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	10			1.3	0.0	0.0	5.5	0.0	0.0		9.3		0.0
25.0. 0 0.0 0 0.0 0 0.0 0.0 0.0 0.0 0.0 0	5			0.0	2.9	0.0	0.0	ı	ı	ı	ı	ĺ	1
25.0 9.5 Ceratoscopelus townsendi JAN. FEB. MAR. APR. MAX JUNE JULY AUG. SEP. OCT. NOV. 0.00 0.0 0.0 11.6 7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	0		t	₽° (0.0	0.0	0.0	ı	ı	1	1 :	1	1 :
Ceratoscopelus townsendi JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. 200.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	'n		1	0.0	1.6	0.0	1 (1 1	1 1	1 1	ll	l I	l t
Ceratoscopelus townsendi JAN. FEB. MAR. APR. MAY JUNE JULY ANG. SEP. OCT. NOV. 00.0			ı	ı	3	ı							
Mar. Mar. Mar. Mar. Mar. June Jun. Mac. Sep. Oct. Mov.					Cerato	scopel	us town	sendi					
00.0		JAN.		MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
33.0	00.			0.0	11.6	7.9	0.0	0.0	0.0	ı	ı	ı	ι
33.0.	20.	ı	ı	ı	8.6	21.6	ı	ı	ı	I	1	ļ	ı
18.6	30.	ı	ı	ı	0.0	18.1	ı	ı	ı	ı	1	I	ı
45.0	38.	ı	ı	1	1 6	10.5	ı	ı	1	1	1	1	t i
56.10 70.0	45	ı	ı	ı	82.8	8°0T	ı	1 1	1 1	1 1	1 1	1 1	l I
70.0 90.0	53	1 1	1 1	1 1	13.2	45.0	1 1	1 1	ı I	1 1	lf	1	ı
90.0 90.0	70.	ı	ı	ı	0.0	0.0		1	1	ŀ	I	ı	ı
22.0 3.1 4.9	0	ı	ı	ı	0.0	0.0		ł	ŀ	1	I	ı	ı
33.0.0	20.	ı	ı	ı	3.1	4.9		1	1	ł	ł	ı	i
45.0	30.	ı	1	ı	3.4	9.2	ı	1	ı	1	1	I	ı
55.55 56.06 57.00	45.	ı	ı	ı	17.8	7.5	ı	ı	1	ı	1	ı	ı
56.00	52.	ı	ı	1	1 :	2.5	ı	ı	I	Į	ı	ı	ı
70.0	60.	ı	L	1 1	51.8	24.8	د ا د	ر 1 د	د ا د	1 1	1 1	1 1	1 1
90.0 45.9	n c			0.0	200			0.0	0	1	0.0	ı	0.0
70.0			•) 		0.0	0.0			ı	1	ı	ı
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TABLE 4. (cont.)

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TABLE 4. (cont.)

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TABLE 4. (cont.)

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Stenobrachius leucopsarus (cont.)

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		ł	ı	1	7	- 4		ı	ı	ı	1	ı	1
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	Du	•	•	9 1	.		1		•	ı		ı	
•		1	C						c	1		1	5,3
	•	17.3	6	•	i		• 1	•	•	ı		ı	•
0	-	1 1	1 1			7 2						ı	
0	2	25.6	735.2		7.8	4	0.21	0.0	•	ì	•		
0	0	1	ı	6	ı	m		0.0		1		ı	
0	ω,	12.7	21.7	ı	ı	ı	1		1 4	1		ı	
0	5		ı	4	9		7	0.0	0.0	ı		ı	0.0
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0	0			4		- 0		0.0	0.0	ı	0.0	ı	ı
C	0		23.1		22.		0.0	1	ı	ı	ı	ı	ł
	0	0.0	1	0.0	8			1	1	ı	ı	ı	ı
0	000		!				ı	ı	ł	ı	ı	1	ı
0	0	ı	ı	!			ı	1	ı	1	ı	ı	ı
	20.	ı	١	ŀ			1	ı	ı	ı		ı	
30	27	6	0	ı		4				ı	0.0	ı	
, (~				68.3		4				ı		ı	
3	S		1	ı	9	83.6		0.0	0.0	ı		ı	1
3	0	11.0	24.0	ł						1	0.0	ı	æ
m	2	1	ī	ı						ŀ	1 4	ı	
3	0	31.2	65.8	0.0					0.0	ı	0.0	ı	0.0
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3	0	ı	0.0	ı		0.0		1	ı	ı	ı	ı	1
6	0	ı		ı				ı	ı	١	ı	ı	ı
m	0	1	1	ı	7.3	1	12.2			ı		ł	1 (
7	0			0.0		9.4	9	0.0	0.0	ı	0.0	ı	0.0
7	2		185.3		1					ı		ı	
7	5		ı	2.9					0.0	1	0.0	ı	•
7	0	12.2	71.3							ı		ı	
7.	5			ı				0.0		ı	1 4	1	
7.	0	25.4		1	0.0	6.5			0.0	1	0.0	ı	4.
97.0	0.09		S.	1			0.00	1	ı	1 -	!	1 1	1
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TABLE 4. (cont.)

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s (cont.	JULY	}						0	1 1	ı ı	1	ll	1 1			0 0	0.0		nus	JULY	0.00 0.00 0.00 0.00 0.00 0.00
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		100						5	0.	٠ د		0	- 0	0	0	0.2	0.4	50.0		Z	70.0 80.0 90.0 100.0 43.0 39.0 55.0 55.0
	STATION	97.	000			. 00		03.	03.	, , ,	05.	05.	05.	05.	07.	10.	13.	117.0			

TABLE 4. (cont.)

				T	Triphoturus mexicanus	ırus mex	ricanus	(cont.	•				
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
85.0	60.0	0.0	0.0	0.00	0.0	0.0	0.0		5.1	1	 	0.0	1 6
7	00		0 0					• •			i	0 0	0 0
7.	0	•								0.0	ı		0.0
7:	י ני	0.0									1 1	14.4	
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7	0	1	ı	ı		0.0		ı	ı	1	ı	ı	
0	8									ı		ı	
0.	0	0.0	0.0	0.0	0.0		0.0	o. 0.0	1.0	ŀ	ທີ່ເ	1	0.0
0.0	7.						•			H		1 1	•
	n n		•			•			0 (ı		ı	• •
			0.0				•			ļ		1)
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3	5			1				•		1		ı	
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, ,	٠ د		0	•					•	ı		1	0
, m	. 0	ı	1	ı		ı		1	ı	1	1	ı	ı
7.	0	0.0	2.1	0.0				0	6	ı	24.9	ı	
7.	5.							•	0.0	1	5	ı	
7.	0.	3.0	3.0	6.3		0.0	0.0	a C				1 1	
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	ر د د			ı	0 0		•		0	ı	1	ı	
7	. 0	0.0	0.0	1		0.0	9	ı	1	1	1	ı	1
7	5			1				1	ı	1	1	1	1
7.	0.	i	1	ı		0.0	0	ı	ı	I	· I	ŀ	ı
97.	0							•		1 1	1 0	1 1	1 0
000	0 4	0.0	0.0	0.1		0				ı ı		1	• 1
	0	0.0	0.0	22.9) . ()		0.0	7.2	ı	8.1	ı	2.3
00.	5	•	•				0			ı	L	ı	1 4
00.	0.	0.0	0.0	0.0			0			ı	156.1	1	0.0
00.	5.								0.0	ı	100	1 1	
000	0 4	0.0	0.0	0.0	0.0	0		12.3		1 1		1 1)
	n c					4	0 4	0.0		١	20.4	1	
000	0	0.0	3.5	0.0	0.0	0.9	-		3.7	1		ŧ	
0	90.			ı	•		$\frac{31.9}{2}$	1	ı	I	1	ŧ	i
000	0	I	ı	ı	ı		ភំព		1 0	1		1	
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	n	I	1	1		0	•		•				

TABLE 4. (cont.)

				T_{I}	.iphotu	Triphoturus mexicanus	icanus	(cont.)				
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
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200			ı	ı		•	0 0				1.12	. 1	
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103.0	000	1 1	1 (1 1	٥ ٠ ٠		72°0	1 1	l I	1 1	1 1	ı ı	1
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900	•	ı I		1	•			ı	ı	ì	ł	1	1
200	•		!			, , <	•	1	ı	ı	1	ı	ı
500					l	* *	*	l I	1 1	۱ ا		ı I	1
	. 7				ı	ı	ı	ı	i	ı	I	l	
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05.	0				ı	1	ı	ı	ı	ı	ı	ı	I
05.	0				ı	ı	ı	ı	1	ı	ı	ı	ı
05.	0			'n	ı	ı	ı	ı	1	ı	ı	ı	I
05.	0		1	0	ı	ı	•	1	1	ı	ı	ı	1
0.5	0		1	- 4	ı	t	ı	ı	1	ı	1	١	1
07	0	•	1	ı	0.0	-	- 0	8	0.0	ı		ı	
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07.	0	1	ı	1	0		9	ı	ı	i	ı	i	I
07.	5.	1	ı	ı	0	3.	9	ł	ı	ı	ı	ı	ı
07.	0	1	1	1		8.6	1:	ı	ı	ı	ı	ı	1
07.	5.	ı	1	1	ı	ı	2	ı	ı	ı	ı	ı	ı
07.	0	1	ı	ı	5	5.	29.6	ı	ı	ı	ı	ŧ	ı
07.	0	1	ı	1		1.		ı	ı	1	1	1	1
0.7	0	1	1	1	9	19.1	1	1	1	ı	ı	1	1
,	,	1		0.0		1	•	- 4	10.3	ı		ı	0.0
9 0	د لا	ı	•	, -					7	1	6	ı	
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9 0	> u	0	0	•	• •	•		• -	• • 1	ı	• ! !	ı)
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13.	ŝ				0		50	ı	1	ŀ	1	ţ	ł
13.	0	2.8	2.5	4	7	4		ı	ı	1	ı	ı	1
13.	2	1				0		ı	ı	ı	ı	1	ı
13.	0	1	5.1	'n	7		'n	ì	ı	ı	ı	ı	l
13.	5	1	ı	ı	1	ı	25.	ł	1	1	1	ı	1
13.	6	1	1	ı	37.5	6.99	6	1	ł	1	ı	ı	1

				Tı	.iphotu	Triphoturus mexicanus	icanus	(cont.)					
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
15.0	10						1	-	-		ı	ı	1
15.0	200	ı										ι	
17.0	9	I										1	0.0
117.0	30.0	ı	0.0	0.0	0.0	0.0	0.0	0.0	20.0	90	33.3	1 1	
17.0	, 0 c										•	ı I	1
17.0	טעכ	ν Ι •		4 L		ຳທ		- 1	• • 1		1	ı	ı
17.0		0.0	0.0				7	ı	1	ı	1	ı	ı
17.0	, in	•		4	-		9	ı	ı	ı	ı	ı	1
17.0	0	ı	6.5	2.			.	ı	ı	ı	ı	ı	ı
17.0	5	1	1		ı	E	9	1	ı	ı	ı	1	١
17.0	0.	1	1	ı	22.3	78.1	9	ı	ı		ı	ı	١
18.5	5	ı	ı	1	1	1	1	ı	ı		ı	ı	ı
18.5	0	1	1	ł	1	ı	ł	ı	ı		ı	ı	ı
18.5	5	1	ı	ı	ı	ı	ı	ı	ı	3	ı	ı	ı
19.0	2	1	1					1				ı	
20.0	N			0.0		0.0			12.9			ı	0.0
20.0	0							0.0	0		0	ł	
20.0	S	0.0	5.4					0.0		0.0		1	
20.0	3								, ,		1 .	ı	
20.0	5				0	0	0			ı	21.5	ı	
20.02	0		ä		1		9			1		ı	•
20.0	2	1		2.9	17.5	2.7	9 1	1 6	1 5	ı		1 1	n ا د
20.0	0	0.0	2.7				٠ د		6.121	l 1		I I	
20.0	ທໍ			l I	1 0	l u	ם מע	! <	l l¢	l t	~	ı	
20.0	•) C	ء س ر	1	, o c	n o	n a	;			35.	ı	
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0.02			-	ı	1	• 1	1		. 1	•		ı	
21.0	• ·	1	ı	ı	1	1	í	ı	ı	21.8	ı	ı	
23.0	7	4.5	6						2	1	2	i	
23.0	0			2	3	0	2.	0	œ	ı		I	
23.0	5.	ı	18.1					21.7	45.8	ı	1 6	ı	
23.0	0	ı		m.		ο.		ċ		1 1	112.8		t 4
23.0	٠ د	ı	I	- 0	ۍ د د	6	ກໍ່ເ	1 1	1	1 1	1	1	1
23.0	•			د		٥				ı		ı	
0.72	4 0	0.0	7 4					•	. ~	ı	22.2	ı	
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0.72	٠ د د	1 1	21.2					40.4	40.7	ı	28.0	ı	0.0
27.0	٠ د)		, ,	200	10	'n	١,		1		ł	
27.0	· -	i	ı	٤				1	t	1	ı	ı	ı
30.0	0	1		, ,	0				0	ı		ı	
30.0	5	2.2	0	7.	0			7.	0	ı		1	4.7
30.0	0	20.6	10.2	18.4	16.4	0.0	0.0	90°9	36.0	1		1 1	
30.0	Š	ì	-		÷			•	ď	ı	ı	I	ł

TABLE 4. (cont.)

			T_{I}	Triphoturus mexicanus	rus mex	icanus	(conc.	•				
n particul	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
1		16.9		21.8	121.4	14.3	73.4	43.7		11.0		0.0
	100	0.0	20	90.	00	13.4	000	119.3	1-1	0.0	1 1	2.4
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	• 5	1		0			ı	1	ı	ı	ı	1
		1	9	7.9			1	ı	ı	ı	ı	ı
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	9.	í	0.0	1	1	ı	ı	1	1	ı	ŀ	ı
				Dioge	Diogenichthys		atlanticus					
- A	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
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		ı	6			0.0	ı	ı	1	ı	ı	ı

TABLE 4. (cont.)

Diogenichthys atlanticus (cont.)

0.000 NOV 1 | | | | | | | | | | | | SEP. SEP. 11111011 000 000 000 000 00 0000 JULY 000 JULY laternatus JUNE 10.0 10.1 0.0 0.0 0.0 29.6 Diogenichthys 0000040 APR. 0.00 0.00 00 0000 10.0 70.0 880.0 990.0 550.0 70.0 70.0 STATION STATION

	0 0.0	TUE		TITL A	ATTC	CED	Ę	MOW	700
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17.0 30.0 - 0.0 0.0 17.0 40.0 0.0 0.0 0.0 17.0 40.0 0.0 0.0 0.0 17.0 42.0 - - 0.0 0.0 20.0 30.0 0.0 0.0 0.0 0.0 20.0 43.0 - - 0.0 0.0 20.0 43.0 - - 0.0 0.0 20.0 43.0 - - 0.0 0.0 20.0 43.0 - - 0.0 0.0 20.0 55.0 - - 0.0 0.0 20.0 55.0 - - 0.0 0.0 21.0 55.0 - - 0.0 0.0 0.0 22.0 40.0 - - 0.0	000					3.4	ı	ı	
117.0 35.0	.0					0.0	8.2	ı	0.0
117.0 \$60.0 0.0 0.0 0.0 0.0 1.1 1.1 1.2 1.1 1.2 1.2 1.2 1.2 1.2 1.2	0.			0.0	0.0	0.0	7.60	ı	ı
117.0 50.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	•					0.0	77.7	ŀ	1
20.0 35.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	٥.		טינ סינ		1 1	1 1	1 1	1 1	1 1
20.0 35.0 0.0 0.0 0.0 0.0 2.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	· 1			1	ı	32.3	ı	1	ı
20.0 45.0 7.7 2.8 0.0 2.7 0.0 2.0 0.0 2.0 0.0 2.0 0.0 2.0 0.0 0.0	.0			0.0	0.0	0.0		1	
20.0 40.0	0	0.0			3.1	0.0	0.0	•	0.0
20.0 43.0	.0 0.		0.0		ı	-1		1	
20.0 45.0 7.7 2.8 0.0 20.0 55.0 0.0 55.0 0.0 55.0 0.0 0.0 0.0 0						35.9		ŀ	
20.0 50.0 5.3 0.0 0.0 2.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	.0			2.5	0.0	1	3.6	ı	
20.0 55.0 - - 0.0 20.0 60.0 2.4 0.0 0.0 20.0 80.0 0.0 0.0 0.0 20.0 80.0 0.0 0.0 0.0 21.0 4.5 6.5 0.0 - 23.0 40.0 - 1.8 1.5 23.0 50.0 - 0.0 42.1 23.0 50.0 - 0.0 42.1 27.0 40.0 - 0.0 24.2 27.0 40.0 - 0.0 22.2 27.0 40.0 - 0.0 22.2 27.0 40.0 - 10.0 22.2 27.0 40.0 - 10.0 22.2 30.0 40.0 - 10.0 22.2 30.0 40.0 - 10.0 44.3 30.0 40.0 - 10.0 44.3 30.0 <td< td=""><td>٠,</td><td>0.0</td><td></td><td></td><td></td><td>ı</td><td></td><td>1</td><td>0.0</td></td<>	٠,	0.0				ı		1	0.0
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27.0 60.0 - - 11. 30.0 30.0 - 8.2 2. 30.0 40.0 10.3 47.7 10. 30.0 46.0 10.3 43.2 31. 30.0 45.0 - 19.3 21. 30.0 55.0 - 11.2 21. 33.0 60.0 6.1 2.9 57. 33.0 25.0 0.0 6.0 6. 33.0 36.0 16.0 5.2 16. 33.0 40.0 4.4 11.4 6.	9.2 14.	0		•		1		1	
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30.0 40.0 10.3 43.2 31.30.0 45.0 - 19.3 21.30.0 55.0 - 11.2 21.30.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0	0.1 13.			0.0		1	m į	I	
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33.0 40.0 4.4 11.4 6.	0.1	0 0			. 6	1	1	ı	•
	6.7 12.		0			ı	106.5	ı	0.0
33.0 45.0 14.	4.3 37	8	0.0			ł		1	1
33.0 50.0 11.9 - 31.	1.8 0.			ı	ı	ı	ı	ı	ı
33.0 55.0 16.	6.9 88.	4		ı	1	ı	1	ł	ı

TABLE 4. (cont.)

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4.4	ı		ı	ı	1	I	I	1	1	ı	
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			Goni	Gonichthys	tenuiculus	snlı					
JAN. FEB. MAR.	AR		APR.	MAY	JUNE	JULY	AUG.	SEP.	ocī.	NOV.	DEC.
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7		0	11.0	0.0		I	I	l			

TABLE 4. (cont.)

	 		ŭ	onichth	Gonichthys tenuiculus	iculus	(cont.)		 			
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
133.0 50.0 133.0 55.0 137.0 45.0 137.0 50.0 137.0 50.0 137.0 55.0 143.0 35.0	0.0	1111111	0.0 3.0 3.0 0.0 0.0 16.2	24.3 0.0 0.0 4.0 0.0 11.6	200000 1 1 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 1 1 1 1	* 1 1 * 1 1 1 1 1	111111111	11111111	1111111	111111	111111111
					Hygophum	um spp.						
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
0.0 100	0.0	3.3	0.0	0.00	000	0.0	7.4	0.0	111			111
93.0 60. 97.0 40.			0.0			0.0	•		1 1		1 1	0.0
00.0 40. 00.0 80.	000		0.0				00.0	7.2	1 1	0.0	H	0.0
03.0 90.	i I	1 1	1 1	•		14.6	1 1	1 1	ł t	1 1	1-1	1 1
07.0 80. 13.0 35.	1 1	2.7	000		000	0.0	0.0	0 - 0	0.0	0.0	1 1	0.0
20.0 60.	0.0	0.0	0.0				0.0	0.0	1 1	4.0	1 1	0.0
20.0 65. 23.0 60.	l I	1 1	1.4	0.0	0.0		1 1	1 1	1 1	1 (1 1	l I
30.0 55.	1 0	1 1	0.0		3.7	0.0	1 1	1 1	1 1	1 (1 1	1 1
33.0 55.	0	ı	0.0		5.0		ŀ	ı	ı	I	1	1
7.0 45. 7.0 50. 7.0 60.	0.0	1 1 1	3 H 2 2 4 2	0.0 0.0 17.4	000	0001	1 1 1	111	1 1 1	1 1 1	1 1 1	1 1 1
				Hi	Hygophum	atratum	E					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
100.0 50.0 105.0 70.0 117.0 35.0 117.0 40.0 117.0 55.0	0.00	0.0	16.3 16.3 0.0 0.0	0.0	0.000	0.0	7.1	0.0000	0.00	0.0 3.2 0.0	11111	0.0

TABLE 4. (cont.)

Hygophum atratum (cont.)

STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
50	0.00	000	0.0	000	000	0.0	4.00	000	 	000	 - - 	2.3
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33.0 40. 33.0 45.	•								ı		t	8
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33.0 60.		1	0.0				1 4	1 0	ı	ı	1	1 0
37.0 30.	0.0	1 1	0.0	0 1	•	000	2.7	o .	l i	l ł	1 1)))
50.0 30.	5.4	1	1			•	ı	ı	ı	ì	ı	ı
				Hyg	Hygophum reinhardti	einhard	itii			 		
TAT	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
103.0 70.0				0.0	2.8	0.0		ı	ı	ı	ı	ı
					Loweina	a rara					 	1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
83.0 51.0 90.0 145.0 90.0 160.0 120.0 80.0 127.0 127.0 50.0 127.0 50.0 127.0 50.0 130.0 55.0 130.0 55.0 130.0 55.0	0.1001011111110	0.0112238	E 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	044100004460480	088 N0000000000000000000000000000000000	0 0000000000000000000000000000000000000	0 000 0	0.000110010	0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0000000000000000000000000000000000000	0.0111111111111111111111111111111111111	0.0000000000000000000000000000000000000

TABLE 4. (cont.)

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	AUG.	0.0	AUG.	0.11111	AUG.	0.001000001000011000000
nt.)	JULY	0.0	JULY	0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	JULY	006 00000 0000 00000
ca (cont.	JUNE	0.0	nitidulum JUNE J	0.0	JUNE	000000000000000000000000000000000000000
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	MAR.	11.00.00 23.00 0.00	MAR.	0.011110	MAR.	
	FEB.	0.0	FEB.	0	FEB.	
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		40.0 55.0 60.0 60.0	Z	152.5 80.0 80.0 80.0 80.0 55.0	 	90.0 90.0 90.0 60.0 60.0 10.0 90.0 12
	STATION	133.0 133.0 133.0 133.0 137.0	STATION	90.0 100.0 107.0 110.0 120.0	STATION	700.00 700.00 700.00 700.00 700.00 883.00 883.00 885.00 885.00 885.00 885.00 885.00

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0.0 120.			1						1		ı	
3.0 30.	2.8	0.0	3.0					0.0	ı	2.7	ı	0.0
3.0 35.			ı						ı		ı	
3.0 40.	0.0	12.0	ı				2.5		ı	0.0	1	5.9
3.0 45.	1	ı	ı	- 0					ı		1	
3.0 50.	10.4	0.0	0.0					0.0	ı	0.0	ı	0.0
3.0 55.	1		1				ı	ı	ı	ł	ı	1
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3.0 80.	ı	ı	ı	0	ı		ı	ı	ı	1	ı	ı
3.0 90.									ı		ı	
7.0 30.			2.9		0.0	0.0	0.0	0.0	ı	0.0	ı	0.0
7.0 32.		•							I		ı	
7.0 35.			0.0	12.9	0.0		0.0	0.0	ı		I	•
7.0 40.			0.0		0			0	ı		ı	7.0
7.0 50.	0.0	0.0	i			٠		0	ı		1	
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TABLE 4. (cont.)

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111180000100011111100001111101001010 (cont.) JULY Merluccius productus FEB. STATION

Merluccius productus (cont.)

	DEC.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	NOV.	
	OCT.	70 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	SEP.	30.002
	AUG.	00 00 0
	JOLY	0 00 006 000 000 000 000 000 000 000 00
	JUNE	40000000000000111111100040000000000000
7	MAY	232722 232722 232722 232722 2000
7	APR.	33.5 33.1 33.7
	MAR.	107.2 107.2 384.0
	FEB.	1932.6 3908.8 2401.1
	JAN.	2 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
	Z	88888888888888888888888888888888888888
	STATION	100.0 100.0

TABLE 4. (cont.)

. 8888008	88 8 8 9 9 6 6 7 8 4 9 9 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	# 242888 0027770 12181478180782181818244440
		000004180800000477000000000000440700000
		OOO04400400400400000000000000000000000
		9004 80800000000000000000000000000000000
		84188866000044786040004407644076000
		4 8086600000VVV000H0V0VVV00440V6VV0000
		00000000000000000000000000000000000000
		######################################
		000000000000000000000000000000000000000
		000000000000000000000000000000000000000
		000077000000000000000000000000000000000
		000220000000000000000000000000000000000
		22720010002222004407922000
		27590H05922220440792000
		C2001000000000440C0000
		00040000000000000000000000000000000000
		00108088888888888888888888888888888888
		01000000000440760000
		10202222204407622000
		0000000440760000
		99444079440000
44 0000 000 000 000 000 000 000 000 000		00000440790000
7. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.		0000440700000
0.00 0.00		000044070000
		004407040000
4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0440702000
		440797000
		407977000
		00000000
		0000000
		000000
		10000
		1000
.0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.		0
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		
111		4
0.0		5
0		
	-	

				×	erlucc	Merluccius productus	ductus	(cont.					
	Z	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JOLY	AUG.	SEP.	OCT.	NOV.	DEC.
137.0	50.0	0.0		1.3	000	0.0	0.0	1 1	1 1	1 1		1 1	1.1
40.	0	45.	ı		1	1	1	ı	ı	1	ı	t :	t 1
40.	S.	164.1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	ıı
40.4		070	1 1	l I	1	1	1	ı	ı	ı	ı	ı	ı
43.		;;	i	ı	ı	ı	ı	ı	ı	ı	1	ı	ı
43.	5	39.	ı	ı	ı	ι	ı	ì	ı	ı	ı	1	ı
47.	5	ů.	ı	ı	ı	i	1	1	1 1	1 1	1 1	1 1	1 1
47.	0		ı	ŧ	ı	i	ı	ı	ı	1	1	ı	
						Macro	Macrouridae						
STATION	Z	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60	55.0		1 .	i •	3.4	000	000	000	000	0.0	3.2	1 1	111
7.0	0.0	0.0	00	1.6			000		000	1 1	0.0	1 1 1	0.0
30.	5.	0.0	0 0		0 0		3.7		000	i i	0.0	1 1	0.0
						Ophidi	Ophidiiformes						1
STATION	Z	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
73.0 73.0 77.0 880.0 883.0 883.0 883.0 885.0 990.0 990.0 990.0	51.0 51.0 555.0 660.0 660.0 665.0 665.0 665.0 665.0 875.0 375.0 375.0 375.0	00000 000000 0	1110000401000001101	110000000000000000000000000000000000000	00000040014640001000	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		mmoomoooloooloooloooloooloooloooloooloo	000000000000000000000000000000000000000	0000 0000 111111	11+112000000000000000000000000000000000	000000000000000000000000000000000000000	11111000010010001001

TABLE 4. (cont.)

	DEC.	0.0		DEC.	000100		DEC.	1 1	t	0.0	1	0.0							0.0	0	0.0	1	0.0	ı t	l (0.0
	NOV.	1		NOV.	11111		NOV.	1 1	ı	0.0			0.0		1 1	ı	1 1	í	1 1	ı	1 1	1	ı	1 1	ı	1 [
	OCT.	0.0		OCT.	00000		ocT.	1 1	ı	1 1	ı	1 1	1		0.0			1	0.0		0.0	ı	0.0			0.0
i 1 1 1 1	SEP.	ŧ		SEP.	0.0		SEP.	1 1	ı	0.0				•	1 1	ı	1 1	1	1	ı	1 1	ı		0.0	ı	1 1
	AUG.	0.0		AUG.	40 0.0 0.0 0.0 0.0 8.		AUG.	0.0	ı	0.0	0 0	0 0						•	0.0		0.0	1	0.0	•	1	0.0
 	JULY	0.0		JULY	000000	~	JULY	0.0	ı			0 0	0.0						0.0		0.0	i 1	•	3.4		0.0
dds shy	JUNE	0.0	Exocoetidae	JUNE	000000	s saira	JUNE	0.0	י	000		6 (0.	*						0.0
Porichthys spp.	MAY	2.6	Exoco	MAY	000000	Cololabi	MAY	0	0	000											000					0.0
H	APR.	0.0		APR.	040000	Ü	APR.			0.0											0 0	0			0 0	1.4
	MAR.	0.0		MAR.	000000		MAR.	0.0	1 1			9.0			5.0			0	1	1 1	0.0	1 1			0 0	0.0
	FEB.	0.0		FEB.	000000		FEB.	10.3	1 1				0.0					0	ı	1 1	0.0	1				0.0
	JAN.	0.0		JAN.	0.0		JAN.	0.0		0.0				000		0 0					2.8	ı	1 1	1 1	1	0.0
		30.0		 Z	35.0 50.0 50.0 50.0 50.0		ON	51.			S IO	ν, c			0.		0		2			ų,	0	S I	. 0	50.0
	STATION	100.0		STATION	97.0 113.0 123.0 130.0 130.0		STATIO	80.	٠ د	ຳທີ່	è.	7:	7:	7.	0	n	97.		03.	03.	10.	10.	10. 17.	17.	17.	120.0

TABLE 4. (cont.)

Cololabis saira (cont.)

STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
2000	i			0									
23.0	0	-		•		0.0				1	c	1	6
23.0 4		•		0.0		0.0	3.0	0.0		ı) 	I)
27.0 4		ı		0.0		5.2	0.0	0.0	- 4	ı	0.0	ı	0.0
27.0 4				0.0		0.0	0.0	2.6		1	1 (t	1 1
133.0 2	0.0	00.0	0.0	00.0	6.4	00	00	00	00	1 1	000	1 1	0.0
						Ather	Atherinidae						
H		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JOLY	AUG.	SEP.	OCT.	NOV.	DEC.
85.0 4 87.0 4	0.00	0.00	000	0.00	0.00	000	000		0.0	0.0	0.0	0.0	000
						Trachipteridae	terida						
STATION		JAN.	FEB.	MAR.	APR.	MAY	JUNE	JOLY	AUG.	SEP.	OCT.	NOV.	DEC.
3.0 5	5.	1			0.0	0.0	2.9	0.0				1 1	1 1
7.0 6	5.	ı	ı	ı		ı	5.6	0.0	0.0	ı	1	ı	ı
0.0	5	1	I	I		0.0	6.2	ı	ı	ı	ı	ı	ı
0.0	0				0.0	0.0	2.0			ı	I	I	I
3.0 5		00.0	2.0	000	000	00.0	0.0	0.0	000	0.0	0.0	0.0	0.0
3.0 6	5.	1	ı		1	1 (7.7	1	ı	f	ı	1	ı
2°0 2°0 8°0	00	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	! !	l 1	0.0	l I
7.0 6	5	1	•)	1		4.7	•	•	ı	1	+	ı
7.0 8	0.	1	1	ı	0.0	2.3	1 0	ı	1	I	ı	1	ı
7.0	00				0.0	n. 0	0.0		l i	1		l (1 0
0.0		0.0	0.0			200		0.0		1 1		1 1	
0.0	0	0.0	0.0		2.3	1.9) 		0.0	1	0.0	I)
3.0 6	0	I		ı	2.5	0.0	0.0	ı	i	ı	I	1	ı
3.0	0.	l	1	1	0.0	ı	3.5	I	ŀ	ı	1	1	1
7.0	0 c	1	l I	ŀ		1 0	900	ı	I I	. 1	1 1	1 1	l 1
7 0.76				0	200	000	0.0			1 1	0	1 1	0,0
03.0 6	0			•		0.0	0.0	•) 	1		ı	•
05.0 3	د	0.0	0.0	2.1	1 0	וכ	1 0	i	1 1	1 1	1 1	1 1	1 1
10.0		1	ı		000		00	ı	i	ı	ı	ι	1
110.0 5	0.0	0.0	0.0	0.0	0.0	0.0	200	0.0	0.0	1 1	0.0	1 1	0.0
0.61	•			0	0.0		0.0	l	l	l	l		

				Trac	Trachipteridae (cont.	dae (co	ont.)					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
117.0 26.0	1 1	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	0.0
				7	Melamphaes	ses spp			 			
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
60 0 60	1			0.0	0.0	4.7	0.0	0.0	ı	ı	ı	i
0.0	ı	ı	ŧ		5.8				ı	ı	ı	ı
0.0	ı	ı	ı	5.0	7.9		0.0	0.0	1	ı	I	ı
0.0 90.	ı	ı	ı	0.0	0.0		1	1	()	1 1		l I
0.0 100.			1 9		7.0		د ۱		1 1	1 1	l I	1
0.0	0.0		4.0	0.0		000	000	0.0	ı	ı	ı	1
70.0					0.0				ı	ı	ı	ı
0.0 80.	0				0.0				i	ı	ı	ı
0.0 90.		1	2.7	0.0	0.0		0.0	0.0	! !	I 1	1 1	1 1
0.0 100.		I		2.3	000				ı I	ı i	. 1	ı
0.0 130.	1 1	1 1	1 1		2.7	1 1	1	ı	ı	Į	ı	ı
0.0 145)	1	1	200	0.0	1	ı	ı	ı	ı	I	ı
3.0 70.	ı	1	ı		0.0	0.0	1	ŀ	ı	ı	ı	1
3.0 80.	ı	1	ı				ı	ı	ı	ı	1	1
3.0 90.										1 1		
5.0 40.		000	•	۰ د د	0 0		0.0	0.0	0	ı	0.0	0.0
7.0 80.) 			2.7	0.0)))		1	ı	ı
7.0 90.	ì	1	ı	0.0		0.0		1	ı		ı	ı
0.0 70.		2.5	8.9	9.1		1 0	0.0	0.0	ı	0.0	1 1	1 1
0.0 80.				2.0		0°0		1 1	1 1	ll	l 1	ı
.06.0		1 1	0 1	30.0	0 0		1	ı	t	ı	ı	ı
0.0 130.	1	ſ	1	0.0		ı	ı	1	ı	ı	1	ı
0.0 139.	1	1	1			1	ı	i	ı	I	ı	ı
0.0 145.	ı	I	1	•		1	1	1 (1 1	ll	1 1	1 1
0.0 160.	ı	ı	ı		0	י ור		C		ı	ı	ı
3.0 35.	1	1	ı	0			0 1	0 1	1	1	ı	ı
3.0 55.	ı		1	0	1		ı	1	ı	ı	1	ı
3.0 80.7	1 1	1 1	0-0	3.5	0.0	9.0		0.0	ı	0.0	ı	0.0
7.0 40.	3.0	0.0	0.0		0.0		2.8	0.0	ı	0.0	1	0.0
7.0 45.			I		0.0	0.0		1 6	1	1 0	1 1	-
97.0 50.0	000	0.0	1 1	0.4	0.0	22.5		0.1	1 1	•	ı	•
7.0 65.	•	•	ı))))) • • I	100	ı	1	1	ı	ı	ı
7.0 70.	1	ı	ı	3.0	5.6		ŀ	1 0	ı	1 0	I	1 6
0.0 30.	0.0	0.0	0.0		0.0		2.9	0.0	ı	0.0	I	•

Mary Mary													
35.0 45.0		AN		AR		MAY	JUNE	JULY	(3)	EP	OCT.	NOV.	DEC.
\$250.00000000000000000000000000000000000	35.	1	1	i						1 1	0-0	1 1	0.0
7000 7000	4 4		•	•		• •	0 0			ŀ		ı	•
10000 10	50.								0	ı	0.0	ı	0.0
450.00 400.00	60.		•						4 0	1 1		1 1	
455.00 400.00	000		•			•	0 1	0 (ı		ı	
1000 1000	000	6 6								i	1	F	•
\$55.00	100.		ı	ı		•		ı	ı	1		ł	
45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0 45.0 46.0	40.	ı	1	ı						1	6.8	i	0.0
955.0 96.0	45.	1	1	ı				1	ı	ı	ı	ł	ı
93.0 93.0 93.0 94.0 95.0 96.0 96.0 97.0	55.	ı	ι	ı				ı	1	ı	ı	ı	ı
70.0 98.0 98.0 98.0 99.0	60	1	1	1				I	1	ı	ı	ı	ı
35.00 36.00 37.00 38	70.	ı	1	ı				1	ı	ı	ı	ı	ı
80.00 40	90	1	ı	ı				ı	1	ı	ı	1	I
\$25.00 \$25.00	200		1	8.7	ı			1	1	ı	ı	1	ı
\$50.00	200	1	1							ı	0.0	1	0.0
\$50.00 \$5	40.	1	ı	1						1		ı	•
\$55.0 \$60.0 \$6	50.	ı	ı	ı				1	t	ł	ı	1	ı
45.0	55.	1	ı	1				1	ı	1	ı	ı	1
70.0	60.	1	1	ı				1	ı	ı	ı	ı	1
80.0 45.0 45.0 45.0 55.0 60.0	70.	1	1	ı				ı	ŀ	ı	ı	ı	ı
40.0	80.	ı	1	1						ı		ı	
45.0 550.0 70.0	40.	1								ı	0.0	ı	0.0
\$55.0 \$70.0 \$7	45.						0			ŀ	1 6	1 1	1 6
70.0 40.0 40.0 50.0 40.0 60.0	50.									i	0.	1 1	•
40.00	55.		ı				•	1	1 (1 1	l 1	! 1	l 1
45.0 40.0 40.0 40.0 40.0 60.0	0,	•		•						! 1	-	ı	0
45.0 40.0	40.	1				•		٠		l I		ı	•
45.0 45.0	25.	1 !	•		•	•						1	ı
45.0 40.0	0 5			•					•		200	1	ı
45.0 40.0 45.0 60.0	V	•	•		•			•		•	•	ı	t
40.00	9	1				•		ı	1	ı	ı	1	ı
45.0	70.	1	•					١	1	ı	ı	ı	ı
45.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40.	ı	ı					1	1	ı		ı	
50.0 0.0	45.			-						ı	•	1	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	50.									ı		1	0.0
70.0 0.0 5.9 - 0.0 0.0 1.6 0.0 2.8 0.0 0.0 0.0 0.0 0.0 0.0 2.0 0.0 0.0 0.0	90									1		ı	
80.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	70.			ı			•			ı		ı	
55.0 1.4 0.0 2.8 0.0 6.0 6.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	80			1 4		•				ŀ		t	
60.0 - 1.4 0.0 2.3 0.0 - 60.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	50.	1 1				•				I I		1 1	
40.0 - 0.0 1.9 0.0 0.0 0.0 0.0 0.0	000	1 1	1 1	•		•	•	ı	ı	1	ı	ı	ı
	000	1 1								ı		ı	
	, L			•	•	•			•	ı	0.0	1	0.0

TABLE 4. (cont.)

Mel FEB. MAR. APR.	Mel APR.	ਰ	Melamphaes spp. (cont.	Spp. (c	ont.)	AUG.	SEP	OCT.	NOV.	DEC.
0.0	100		000	0.40	0.0	0.0	1 1	0.0	4 6	210
016		030	900	000			1 1 1	0,10	111	0.0
,		0 0	2.7	0.0) 		1 1	1 1	1 1	1 1
00,		0 0	, m c	0.0	L	1	i I	t i	i I	1 1
			0.0	0.0	1 1	l I	1	1	ı	1
0 0			. o	1 1	1 1	1 1	1 1	1 1	1 1	1 1
		•	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 I
			Poromitra	ra spp.						
FEB. MAR.		APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
i -				0.0	0.0	0.0	1 1	0 ° 0	1 1	1 1
0.0		7.5	0.0	000	1 1	1 6	il	1 1	1 1	1 1
. 10				000		1 0	1 1	1 1	1 !	1 0
0 0.0 3.0			001		0 1	0 1	l I	1	t	0 1
		0 0	5.7	0 1	1-1	1 1	1 1	1 1	1 1	1 1
8.5				•	t	ı	ı	ı	ı	I
ô		0.0	3.0		ı	ı	I	ì	i	l
		Scope	Scopelogadus	bispinosus:	snsou		 			1
FEB. MAR.		APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
	1	0.0	0.0	2.9	١	1	1	ı	ı	ı
			Syngnathus spp.	dds sny	 	1				
. FEB. MAR.		APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
0.0000000000000000000000000000000000000		00000	0000	00000	00000	0000	1111	0000	11111	000000

TABLE 4. (cont.)

				Syng	Syngnathus	spp. (cont.	ont.)					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
113.0 30.0 113.0 35.0 117.0 35.0 120.0 35.0 121.5 28.0	0.01	00000	0.00	000001	000001	000001	0.00	00000	2.2 1.8 0.0 0.0	0 % 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11111	000 0
					Agor	Agonidae						
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
73.0 60.0 80.0 51.0 80.0 55.0 83.0 48.0 83.0 51.0 87.0 55.0	0 0000	0000000	10.0	0.0000000000000000000000000000000000000	0.00	000000	000000	800000	000	0000	00001	0000
				Anc	Anoplopoma	a fimbri	ia			ŀ		
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JOLY	AUG.	SEP.	OCT.	NOV.	DEC.
87.0 70.0				5.1	0.0	0.0		ı	ı	ı	1	1
					Cott	Cottidae						1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
63.0 55.0 83.0 48.0 83.0 55.0 87.0 50.0 90.0 28.0 97.0 30.0 100.0 30.0 103.0 30.0 110.0 33.0	1.4 0.0 0.0 0.0 0.0 0.0	14.2 0.0 0.0 0.0 0.0 0.0 3.0	MAR.	0.0 28.5 0.0 0.0 0.0 0.0 0.0 APR.	0.0 0.0 2.3 9.2 2.3 9.2 2.6 2.4 2.6 0.0 2.7 0.0 0.0 0.0 10.5 0.0 2.6 0.0 0.0 0.0 0.0		0.0 6.2 0.0 0.0 0.0 0.0 0.0 0.0 4.7 0.0 0.0 0.0 3.3 0.0 marmoratus	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	OCTT.	1.6 0.0 0.0 0.0 0.0 0.0	00000000000000000000000000000000000000
83.0 51.0	13.8	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6

TABLE 4. (cont.)

	DEC.	0.0000000000000000000000000000000000000	DEC.	0.0	DEC.	000000		DEC.	0.0	1	DEC.	1 1
	NOV.	000011111	NOV.	0.0	NOV.	0000		NOV.	1-1		NOV.	1 1
	ocī.	000 00000	OCT.	3.4	ocr.	0.0		OCT.	7.1		OCT.	1 1
	SEP.	86000	SEP.	0.0	SEP.	1 0000		SEP.	1 1		SEP	1 1
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TABLE 4. (cont.)

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TAT	17.	17.	17.		17.	17	17.	17.	8	19.	20.	20.	20.	200	200	20.	20.	20.	٠٥٥	21.	21.	21.	21.	23.	23.	23.	23.	27.	27.	27.	. / 7	300	30.	130.0	30.	ى ى د	300	(

TABLE 4. (cont.)

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	SEP.	11111		SEP.	1 1		SEP.	0.011111111111	2.5	111111
	AUG.	119.0 105.3		AUG.	0.0		AUG.	00000001111	0000	
nt.)	JULY		p.	JULY	0.0		JULY	0.00 0.00 0.00 0.00 0.00	27.1	0.0000000000000000000000000000000000000
op) •dc	JUNE	0.0 3.1 12.3 0.0	dds snqc	JUNE	 	dds sn:	JUNE	0.0 0.0 0.0 0.0 0.0 0.0 - - - - - - - -	0.00	
Sebastes spp. (cont.	MAY	000000000000000000000000000000000000000	ebastolobus	MAY	2.6	Prionotus	MAY	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0000	
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	TATION	33.0 55.0 37.0 23.0 37.0 30.0 37.0 35.0 37.0 45.0		STATION	60.0 100.0 80.0 110.0		TATION	83.0 527.0 527.0 527.0 527.0 527.0 527.0 527.0 527.0 527.0 527.0 527.0 52.0 52.0 52.0 52.0 52.0 52.0 53.0 53.0 54.0 55.0 56.0 5	3.0 43. 7.0 50.	97.0 35.0 97.0 35.0 00.0 29.0 05.0 32.0 07.0 35.0

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(cont.)	JULY	800 00 00 00 00 00 00 00 00 00 00 00 00	JULY	0000000110	JULY	0.00
spp.	JUNE	inidae	JUNE	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Gobiidae	JUNE	0.0
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Hypsob	APR.		APR.	0.0000000000000000000000000000000000000	APR.	0000
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	Z	225.00 225.00 225.00 225.00 225.00 225.00 225.00 225.00 225.00	Z	21.0 227.0 229.0 32.0 33.0 40.0 23.0	Z	60.0 65.0 51.0
	TAT	110.0 1117.0 1117.0 1118.5 1118.5 1120.0 121.0 121.0 123.0 127.0 130.0 133.0	STATION	000000000	AT	73.0

TABLE 4. (cont.)

Gobiidae (cont.)

STATION	JAN	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	oct.	NOV.	DEC.
F ∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞∞	AAN 0.0000000000000000000000000000000000	080000000000000000000000000000000000000	000000000000000000000000000000000000	APR.	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				0.0000000000000000000000000000000000000	6.000.11111111000110000		400000000000000000000000000000000000000
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TABLE 4. (cont.)

Labridae (cont.)

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MAY	0.0	20.00	000000001	- Apogonidae	MAY	0.0 2.7 0.0 3.0 Trachurus s	MAY	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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	17.	220000	1223 1223 1223 1223 1230 1430 1430	50.	IE	80.08	STATION	67.0 70.7 77.7 77.7 880.8 80.8

NOV. CI SEP. Trachurus symmetricus (cont.) JULY 1455.5 1455.5 1455.5 1790.0 12.6.8 12.6.8 12.6.8 13.6.0 13.6.0 14.6.0 15.6.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 16.0.0 APR. 0 00000 00 0 00 0000 00 00 00

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7.0 45.	ı	ı	ı		9				ì	ı	ł	
7.0 50.			ı			13.		0.0	ı	39.2	ı	0.0
7.0 60.		0.0	ı			19.		ı	ı		ı	I
7.0 65.	•		ı			'n	1	ı	ı	ı	1	ı
7.0 70.	1	ı	ł	2.	8,5	42.	ı	1	1	1	1	1
7.0 80.	ı	ı	ı	2		9	ı	1	ì	ı	i	1
7.0 90.	ı	ı	ı		ı	5	ı	ı	ı	ı	ł	1
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00.00									ı		1	
00.0 40.		0.0	45.8	6.9	0.0		0.0	0.0	1	2.7	ı	
00.0 45.	•	•	1			3			ı	1	ı	
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00.0 55.	1	•				Ŝ			1		1	
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00.00	•			•	•		•		ı		ı	
00.00	- 0		9		2.	0			ı	0.0	ı	
00.00	4	176.6	39.0	8		-	0.0	0.0	ı		ı	
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03.0 30.	ı	1	ı		14.0	0.0		0.0	ı	0.0	ı	0.0
03.0 35.	ı	ı	ı	16.7			0.0	0.0	ı	0	ı	
03.0 40.	ı	ı	ı		0				ı		ı	
03.0 45.	1	ı	i		6		i	1	ı	ı	I	I
03.0 50.	١	ı	ı			6	ı	ı	ı	ŀ	1	ı
03.0 55.	I	ı	ı			7.	ı	ı	1	ı	1	ı
03.0 60.	ı	ı	ı		-		ı	1	ı	ı	ı	ı
03.0 65.	ı	1	1	ı	ı	8	ı	ı	ı	I	ı	I
03.0 70.	ı	ı	1	40.5	71.8	œ	l	ı	ı	i	ı	i
03.0 80.	ı	ı	ı	9			ı	1	1	ı	ı	l
03.0 90.				ı			t	1	ı	1	i	ı
05.0 35.			4.	ı	ı	t	ı	ı	ı	ı	ı	1
05.0 40.			1.	1	ı	ı	1	1	1	ı	i	١
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05.0 60.			9	ı	1	1	ı	1	ı	ı	1	ı
05.0 70.	0.0		59.6	ı	ı	ŧ	ı	1	ı	I	ı	ı
05.0 80.		١	6	ı			ı		ı		i	
07.0 35.		1				5.	19.9	0.0	ı	0.0	1	0.0
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(cont.)

Trachurus symmetricus

NOV. 111.8 CIO SEP 2234772483 224772483 224777483 22 FEB. JAN STATION 107.0 1107.0 11107.0 11100.0 11100.0 11100.0 11100.0 11100.0 11100.0 1113.0 111

TABLE 4. (cont.)

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	FEB.	0.0	0.0	0.011		FEB.		
	JAN.		0.0	000		JAN.		000
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				T_1	Trachurus		symmetricus	(cont.	_				
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TABLE 4. (cont.)

Scomber japonicus (cont.)

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MAY	1 .						3		0.	0.0										ı	1	1	ı	1	Trichi	MAY	0.0			•						
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H	27	27.	27.	, C	30.	30.	30.	30.	30.	33.	33.	33.	33.	33.	33.	37.	37.	37.	40.	43	47	47	20.5	150.0		STATION	113.0	20.	25	36	23	30.	30.	33.	33.	

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TABLE 4. (cont.)

	DEC.	00 1100000001110	DEC.	11100000	DEC.	0.0000000000000000000000000000000000000
	NOV.		NOV.	1111111	NOV.	1111111111
	OCT.	60001000001111	OCT.	1114220	ocT.	0.001100
	SEP.	0000 000 1111111	SEP.	111111	SEP.	0.011111
	AUG.	0.0000000000000000000000000000000000000	AUG.	00000	AUG.	0.00110001000
(cont.)	JULY	1.5 5.6 6.9 6.9 6.0 0.0 0.0 0.0 0.0 0.0	JULY	00000	JULY	0.00.00.00.00.00.00.00.00.00.00.00.00.0
simillimus	JUNE	0.0 0.0 8.3 97.4 16.3 12.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	JUNE	- 0.0 0.0 0.0 0.0 0.0	JUNE	0.0000000000000000000000000000000000000
	MAY	.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MAY	5.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		000 0000 000
Peprilus	APR.	7 Let	APR.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	APR.	0.00
	MAR.	000000000000000000000000000000000000000	MAR.	0.0000	MAR.	0 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	FEB.	000000000000000000000000000000000000000	FEB.	0.000	FEB.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	JAN.	000000000000000000000000000000000000000	JAN.	0.00	JAN.	01 000 00
	NC	26.0 28.0 390.0 20.0 20.0 20.0 30.0 30.0 30.0 30.0	NC	145.0 90.0 40.0 40.0 40.0 35.0 60.0	NO	80.0 90.0 70.0 70.0 70.0 35.0 40.0 65.0
	STATION	117.0 117.0 117.0 117.0 117.0 117.0 120.0 123.0 123.0 137.0	STATION	80.0 80.0 90.0 93.0 97.0 110.0	STATIC	100.0 100.0 1003.0 1103.0 1113.0 1113.0 1113.0 120.0

TABLE 4. (cont.)

	DEC.	0.0		DEC.	b	ı			0.0		0 (•								200		9 (2.9		-	0			000	•
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	AUG.	0.0		AUG.		0.0		1 1		•				•						00							0.0						000	0
cont.)	JULY	0.0	es	JULY	1	0°0		1 1		9		0 0				0 0				0.0	0					ı	0.0		•	0.0			000	•
dae (JUNE	000	euronectiforme	JUNE		0.0		1 1								0 0				0.0			0 0			1	0.0		•				000	0
asmodonti	MAY	2.3	eurone	MAY	1	0.0	1	1 1		•						0 0	b 0			0.0						ı	0.0		•			•	000	•
Chias	APR.	0.00	Pl	APR.		0.0														00.0						1	0.0						000	
	MAR.	1.8		MAR.		ı	1	1 1								000	•			0.0				0.0		1	0.0			0:				
	FEB.	0.0		FEB.		ı	ı	1 1								00		ı		6.4				0.0		1	0.0					•	10.5	
	JAN.	0.0		JAN.		ı	ı	1 1			0.0		0			0.0		ı		0.0	1	1 1	1	ı		1	0.0	ı	10				000	•
	Z	55.0 60.0 40.0		Z	0.	0	0	9.		6	0 .	o k	Š	5	æ	0		5.	s ou		5	٠ د	0	5	٥,			-	۰ ۵ ۹	. 0	0	Š.	0.00	•
	STATION	123.0		STATION	7.	0	e,	٠,	 im	5.	5	o L	7:	7.	0	00	m	3	97.	000	03.	10.	13.	13.	17.	18.	20.	21.	23.	27.	30.	30.	133.0	2

TABLE 4. (cont.)

				Pleur	Pleuronectiformes	ormes ((cont.)				 	
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	ocr.	NOV.	DEC.
37.0 30.			6.0	0.0	0.0	0.0	0.0	129.6	1 1	1 1	1 1	0.0
150.0 40.0	2.4	1 1	•) 	• 1	1	I	ì		ı	ı
					Bothus	s spp.						
	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JOLY	AUG.	SEP.	OCT.	NOV.	DEC.
130.0 30.0		0.0	0.0	0.0	0.0	0.0	1	0.0	ı	3.3	ı	0.0
				Ci	Citharichthys spp	thys s	-dd	 		1		1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
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7.0 055	1 1	1 1	1 1	0.0	2.8	0 6	0		ı	1	ı	1
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0.0 70.	1	I	ı	0.0	9.0			٠,	1 1	1 1	l I	1 1
3.0 80.	1 1	1 1	1 1	د ا د	0 1				ı 1	ı	1	1
7.0 50.		1	1		0.0			7.	ı	ı	ı	1
7.0 55.	1	ı	ı						ı	ı	1	ı
7.0 65.	1		1					4.	ı	ı	1	1
0.0 51.	0.0			0				0	1	ı	1	1
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0.0 80.	7			0.0			0.0	6.4	ı	ı	i	!
0.0 90.	2.	ı							ſ	1	l	ł
0.0 100.	11.	ı								i	l L	
1.8 46.		1	ŀ	ı	1	i	ł	ı				•
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3.0 48.	00		0 0		0 0		0				6	0
3.0 51.	2.			4.					ກໍຜ	ار 4. در	mo	0 4
3.0 55.	ທ໌ດ				0 (0 0			30.2	21.2	
85.0 39.0	0.0	0.0	4.4	1.3	0.0	12.4	0.0	45.0	29.8	ı	24.0	0
5.0 40.	4.									ı	34.4	0

DEC.	1
NOV.	ULE ULE ULE ULE ULE ULE ULE ULE ULE ULE
OCT.	1370.00 1.11.11 1.11.11 1.11.11 1.11.11 1.11.11
SEP.	221 3388 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
AUG.	101 100 100 100 100 100 100 100 100 100
JULY	221 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	00000000000000000000000000000000000000
APR. MAY JUNE	
APR.	
MAR.	1
FEB.	211 200-4-0-1 113.0-4-0-0 10.0-0-0-0-0 10.0-0-0-0-0 10.0-0-0-0-0-0 10.0-0-0-0-0-0-0 10.0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0
JAN.	111 100 100 100 100 100 100 100 100 100
 z	48000000000000000000000000000000000000
TAT	8885.0 887.0 887.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0 990.0

				Cithar	Citharichthys spp. (cont.)	s spp.	(cont.)					1
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JOLY	AUG.	SEP.	OCT.	NOV.	DEC.
5.0 35.	1 4			1	ı	ı	- 1	ı	1	ı	ı	ι
05.0 40.	3.5	0.0							ι	1 6	ı	
07.0 32.	ı	ı				<u>.</u>			ı	20.5	i I	
07.0 35.	ı	ı	1	υ c	000	37.0	3 3 5 6	40.00 00.00	1 1	139.2	1 1	0.4
07.0 40.	l I					o a		0 (ı		ı	
10.0 33.	t I							Š	1	7	1	
10.0 33.	1 1			·				0	ı	7	1	
20.0	4						0		1	7.	1	
10.0	0.0	0.0	0.0		0.0				ı	0	ı	
10.0 65.							1	ı	1	ł	1	ţ
10.0 70.	2.1						1		L		ı	
13.0 30.	ı				0.				75.5	1	1	
13.0 35.	ı	0.0	υ. 4.α	4.0	10.7		4.4	7.0	١٥	163.0	I I	
13.0 40.	I					•	> I		ı	• }	ı	•
13.0 45.	1 0		•		•		ı	ı	ı	1	ı	ı
13.0		, ,				0 1	1	ı	1	1	ı	1
13.0 00.	1 1				0	6	ı	ı	1.	1	1	ŀ
15.0 20.	!	1	ı	ı	ı	1	ı	1	5.	1	ı	ı
15.0 25.	1	ı	ı	ı	1	ı	ı		33		1	
17.0 26.	1	-	-			9	0	ä	49.		ı	3.6
17.0 30.	ı		0		0		64.8	99.5	345.7	8.2	ı	
17.0 35.	ı		2			æ	٠. ص	6	7.	6	ı	ı
17.0 40.	6.3	0.0	11.2	1.5	2.7	0.0		÷	7.		ı	ı
17.0 45.	ł				Š,	2;	t	i	ı	ı	1	1 1
17.0 50.	0.0	0 0	-				1	1	1 1	l	1 1	1 1
17.0 55.	ŀ					د	!	1 1	1		1	ı
17.0 60.	I	0.0					1	1	y	ı	f	ı
18.5 30.	1		1 1	1 1	1	1	ı	ı	c	1	1	ı
18.5 35.	1 1	t 1		1	ı	ı	ı	ı		1	ı	1
13.0 42.				C	2.	90.	1	8	4	œ	ı	
20.0	2.8	7.2	48.1	31.2	64.8	484.2	355.3	187.1	4.	18.9	1	
20.0 31.	•		-	1	1	ı	ı	1		, ,	1	
20.0 35.	0.0	0.0	42.9	16.9	97.2	123.5	357.2	156.5		44.3	ı	0.0
20.0 40.	1	ı	2.			9		ı	1 0	I	1 1	1 1
20.0 43.					1 (F				1 9	1	-
20.0 45.		0.0	5.7				100		1 1	10.8	1 1	2.7
20.0 50.	•					· c			1	• 1	ı	
20.0		- 4	0 (6	ı	7.	ı	
120.0 70.0	0.0	0.0		0.0	0.0	0.0	0.0	35.0	1	10.8	ı	7.2
20.0 90.	ı	I	ı						4		1 1	0
21.0 30.	ı	1	ı	ı	1	I	1	1 (27.4	1 1		ı
21.0 34.	١	ı	ł	ı	ı	ì	l	ı	•			

TABLE 4. (cont.)

Citharichthys spp. (cont.)

DEC.	J	1	20.8	9.3	ı	4.5	1	ı		0.0		2.7						0.0			1.9			0.0	ı		7.6	•	ı	ı	ı	1		DEC.	0.0	0 0				0.0	
NOV.	ı	ı	1	I	ı	ı	ı	I	ı	ı	ı	ı	1	1	1	1	1	ł	1	1	ı	1	ı	ı	I	1	ı	ı	I	ı	ı	ı		NOV.				1 1	ŧ	1 1	
OCT.	1	1	14.9	19.4	ı	3.6	1	ì			1	8.0			7.	4.1		3.7	1	1			ı	56.8	ı	ı	26.7	1	1	1	ı	ı		OCT.	2.9		ı	1		0.0	
SEP.	24.6			ı	ı	1	ı	ı	ı	1	ı	1	1	ı	ŀ	1	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	1	1	1	ı		SEP.		0.0				3.6 1.6	
AUG.	1	ı		10.6	0	i,	ı	ı			0	0.0						0.0			0	- 4		0	1	ı	22.3		ı	ı	ι	t		AUG.		0.0		1		3.2	
JULY	ı	ı	ı	2		6°8	1	ı	7	2	5	24.7	1	ı	-	4		2.0			5		0.0			1	18.7		ı	1	1	t	nata	JULY		0.0		ı		0.0	
JUNE	1	ı				0.0				4	5						•	7		0												ı	na stomata	JUNE		0.0		1		0.0	
MAY	1	ı			0	3.0					1					4																	Hippoglossina	MAY		0.0		1		0.0	
APR.	1	ı				2.8								7.		2		0															Hipp	APR.				1		0.0	
MAR.	1	1	9		0	2.9				, m					٩	2	2		0					0										MAR.		000)	i	0.0		
FEB.	1	ı			- 0	6.1		ı	8		16	0.0	•					0)			2.6		0.0		1	13.3		ı	ı	ı	1		FEB.) e		í		0.0	
JAN.	1	ı	83.3	1	1	ı	1	1	1.5		1	1	ı	١	-		•	ı	1	- 4		0.0		0.0			4.2					1		JAN.			•	ı	1 1	1 1	
N.		٤	7	0	5	50.0	ις.	0	4		کا د		1	6			,		, L	0	S	d	2	0	5	0	3	0	5	0	0	0.		N(1:	ء د	5	9	9	30.0	
STATION	21.	21.	23.	23.	23.	123.0	23.	23.	27.	27	27.	27.	27.	30.	30.	30.	300	300	30.	30.	33.	333	33.	33.	33.	33.	37.	37.	37.	37.	37.	37.		STATION	1 60	טונ.	00	15,	17.	117.0	

	NOV. DEC.		•	•		÷	- 5.9	æ	1	c		0	0	0	•	ċ			1		0		0.0	1	1			NOV. DEC.	.0			•		0	0			0	1			4		
	OCT.						0.0									0			1				0.0	ı	ı			OCT.			1		0.0						•	•		0)	
	SEP.	1	7,0				1	ı		1	1	1	1	1	1	ļ	ı	1	ı	•	1	ı	ı	1	1			SEP.	1		Z		ı	1	1	1		-	•	900			1	1-1
•	AUG.			0			0.0									8	0		- 0		0.0		12.4	ı	ı			AUG.					0.0							0	0			0.0
(cont.)	JOLY		ı		0.0		1		1 C		0.0				0	0			0.0	0	0.0		0.0	ı	ı		Snorus	JULY					0.0					•		0		0.0		0.0
stomata	JUNE						0.0						- 0							0	0.0						calliornicus	JUNE										•	0					7 8 9 8 9
	MAY																			٠	0.0				1	P 4	Paralichthys	MAY					0.0					0	0	0				00.
Hippoglossina	APR.											•	, ,	0	0			-			0.0			- 4			Parall	APR.										8						00
H	MAR.											- 0	•						•		0.0				b			MAR.			0.0		ı	- 4									- 0	2.1
	FEB.							0						0			- 0	1	0		0.0		0.0	•	1			FEB.								,						0.0		
	JAN.				- 4		•		l	ı	0.0				0		-		0		0.0	ı	0.0		5,3			JAN.	i			- 0	0.0	-	1	•		ı	1			- 0		
	Z		2	5	0	٠ د لا	,,	•		S.	4	;	•		'n	0	Ľ		٥,	'n	0	0	~) L	25.0			NO	1	و	0	0	7.	_	0	, c	•		ģ	'n	5	0	ď	40.0
	STATION		19.	20.	20.	,	,,		23.	23.	27	27.	, ,	200	30.	30.	23	,	200	33.	33.	33.	37	, ,	150.0			STATIO		ï	5.	7.	8	7	0	000		71	17.	17.	20.	20.	20	120.0

TABLE 4. (cont.)

13.0 30.0 0						Syacium ovale	n ovale	:					
30.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
30.0	33.0 30				0.0	0.0	0.0	0.0	0.0	1	6.2	1	0.0
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$					Xys	treury		is				 	
31.0	STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
39.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	17.0 30. 17.0 40.		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	1 1	0.0
31.0	18.5 30. 20.0 25. 20.0 30.			000	000	00.0	000	0.0	000		000	1 1 1	00.0
31.0	20.0 31.			1 1	1 1	1 1	1 1	1 1	l I	22.	1 1	1 1	111
JAN. FEB. MAR. APR. MAX JUNE JULY AUG. SEP. OCT. NOV. DE 53.0 1.0	21.3 31.	ı	ı	ı	1	1	1	١.	1	ı	ı	I	0.0
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$					Glypt	ocephal	us zaci	irus					1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	STATION	JAN.		MAR.	APR.	MAY	JUNE	JOLY	AUG.	SEP.	OCT.	NOV.	DEC.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	67.0 53 73.0 50			 	0.0	1 1	3.4	6.9	0.0	1 1	1 1	1-1	l I
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0 60	0 0		0.0	0°0 3°0	0.0	0.0	000	0.0	0.0	0.0	0.0	0.0
### Hypsopsetta guttulata JAN. FEB. MAR. APR. MAY JUNB JULY AUG. SEP. OCT. NOV. D 130.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	.0 55 .0 55		0 0	0.0	0.0	4°3	00	000	0.0	000	1 1	000	0.0
31.0					Hyps	opsetta		lata					
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JOEX	AUG.	SEP.	ocr.	NOV.	DEC.
Lyopsetta exilis JAN. FEB. MAR. APR. MAY JUNE JULY JULY AUG. SEP. OCT. NOV. 60.0 - - 0.0 0.0 0.0 - - 80.0 - - 0.0 0.0 - - - 90.0 - - 0.0 0.0 - - - 90.0 - - 0.0 0.0 0.0 - - - 60.0 - - - 0.0 0.0 - - - - 60.0 - - - 0.0 0.0 -	97.0 30. 21.3 31.	0.0			0.0	0.0	0.0	0.0	0.0	1 1	0.0	1 1	2.8
$\begin{array}{cccccccccccccccccccccccccccccccccccc$					T	yopsett		S					
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0 60					10.3		00	0.0	1 1	1 1	1 1	1 1
0 60.0	965	1 1	1 1	1 1		12.8	1 1	00	0.0	1 1	il	1 1	1 1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	09 0.	1 8	1	1	1))		0.0)	ı	1	1	ı
.0 55.0 0.0 6.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	09	ı	1	t	0.0	1 1		0.0	0.0	1 1	1 1	1 1	1 1
.0 60.0 3.1 3.1 0.0	.0 55 .0 55	1 1	1 1	l I	000	6.7		0.0	000	ι	1	1	1
	09 0.	ı	1	ı	1	3.1		0.0	ı	ı	ı	1	ı

DEC.	000000000000000000000000000000000000000	DEC.	1 1 1 1 1
NOV.	111110000000000000001111111111111111111	NOV.	1 1 1 1 1
OCT.		OCT.	1 1 1 1 1
SEP.	00000 00000 000 111111111000 1000 11	SEP.	1111
AUG.		AUG.	00000 00000
JULY	ficus	JULY	0.00 0.00 1.00 1.00
图	10.1 10.1 10.1 10.0 10.0 10.0 10.0 10.0	JUNE	0.0000
APR. MAY JUN	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MAY	0.00
APR.	Micr	APR.	5.0
MAR.	2.6.0 0.00	MAR.	1111
FEB.	4 x 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FEB.	1111
JAN.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	JAN.	t 1 1 1 1
	565.0 566.0 56	2	70.0 70.0 80.0 50.0
STATION	77.0 80.0 80.0 80.0 80.0 80.0 80.0 80.0		60.0 70.0 77.0

TABLE 4. (cont.)

	DEC.	0 00		DEC.	000000000000000000000000000000000000000
	NOV.	1111111111		NOV.	00000000111111111111111111111
1 1 1 1	OCT.	0.000		OCT.	111100011111000000000000000000000000000
	SEP.	0.00		SEP.	0.0000000000000000000000000000000000000
(AUG.	00001100000		AUG.	0 0000000000000000000000000000000000000
(cont.	JULY	0.00	1	JULY	0.000000000000000000000000000000000000
ificus	JUNE	2.7 0.0 0.0 2.8 4.1 2.6 0.0 2.6	- 1	JUNE	
mus pac	MAY	0.0 0.0 0.0 0.0 0.0 0.0 0.0		MAX	000000000000000000000000000000000000000
Microstomus pacificus	APR.	0.000 4 00000 CG	٠ŀ	APR.	22222222222222222222222222222222222222
M	MAR.	00 0 00		MAR.	2000 1000 1000 1000 1000 1000 1000 1000
	FEB.	00 00		FEB.	10.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
	JAN.	00 00 00 00 00 00 00 00 00 00 00 00 00		JAN.	000000000000000000000000000000000000000
	Z	70.0 70.0 70.0 100.0 65.0 35.0 40.0		Z	243640 24366 24366 2506 25
	STATION	80.0 80.0 83.0 90.0 100.0 100.0 113.0		TAT	7000 7300 8830 8830 8830 8830 8830 8830 8830 8830 8930 1000 1000 1100 11130 11130 11150

TABLE 4. (cont.)

				Paroph	Parophrys vetulus	į	(cont.)					l
H	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
120.0 30.0 120.0 40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	1 1	0.0
				Pl	Pleuronichthys		spp.					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
73.0 60				000	0.0	000	0.00	80.0	•		0.0	
85.0 50.	000		000	900	000						00 1	000
20.0 25.			• • -		א ואו כ	000	0 1 0			000	1 1	
0.0 45.	00-		• •		11.0	000	000			000	1 1	
30.0 45.			1.7		00.0	000	0.0		1	0 1	ı	
				Pleur	Pleuronichthys		coenosus					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
	00001000	0000000	0.00 0.00 0.00 0.00	0000110000	0000000	0.00	0000000	8 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 1 1 1 1 1 0 0	00000011	0000000
3.0 35. 8.5 35.				0001	0.0	000	0011	• •	0.0	06	1.1.1	•
				Pleur	Pleuronichthys		decurrens					
STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	ocr.	NOV.	DEC.
73.0 60.0 85.0 60.0 113.0 50.0	0.0	4.0	6.1	000	0.0	000	0.0	0.0	111	111	0.0	1 1 1

TABLE 4. (cont.)

Pleuronichthys ritteri

DEC.	000000	!	DEC.	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	
NOV.	111111		NOV.	0.00 0.00 0.00 0.00 0.01	1 1 1
OCT.	0.0000000000000000000000000000000000000		OCT.		7.2
SEP.	1.1 0.1 0.0 1.5		SEP.	SEP. SEP. SEP. SEP. SEP. SEP. SEP. SEP.	611
AUG.	80000 80000 800000		AUG.	AUG: 000000000000000000000000000000000000	
JULY	0000 0	calis	JOLY	000000000000000000000000000000000000000	
JUNE	247 0.00 0.00 0.00	s vertical	JUNE		
MAY	000000	euronichthys	MAY	Symphurus MAY 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	
APR.	000000	Pleuro	APR.	APR 00000 00 00 00 00 00 00 00 00 00 00 00	
MAR.	0.00		MAR.	MAN	
FEB.	00000		FEB.	HEB.	
JAN.	0.000		JAN.	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	
Z	26.0 30.0 30.0 35.0 37.0		ON	000 000 000 000 000 000 000 000 000 00	000
STATION	117.0 117.0 120.0 120.0 123.0		STATIO	83.0 83.0 93.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0 1110.0	20.

	DEC.	44 0 1 0 0 4 0 0 4 0 0 4 0 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1	DEC.	11111000100401001111101110
	NOV.		NOV.	1111100010011111111111111
	OCT.	000 000 000 000 000 000 000	OCT.	
	SEP.	1 1 2 2 2 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	SEP.	1111100010001111111111111
	AUG.	80 000000000	AUG.	00011000100001000111001110
ont.)	JOLY	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JULY	000 000
Symphurus spp. (cont.	JUNE	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JUNE	00011800000001001011000400
	MAY	0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0	MAY	10000 171.2 171.2 1000 1000 1000 1000 1000 1000 1000 1
	APR.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	APR.	0m0 10000000000000000000000000000000000
	MAR.	0 0000000000	MAR.	00 000 0000 0000 0 0
	FEB.	00 10000000000	FEB.	0 000 6000 000 11100110
	JAN.	00 0 00000	JAN.	1001100101181000011101110
	TATION	20.0 20.0 21.0 21.0 23.0 23.0 23.0 23.0 23.0 23.0 23.0 33.0 3	AT	880.0 100.0 880.0 100.0 883.0 160.0

TABLE 4. (cont.)

Disintegrated fish larva (cont.)

DEC.	0004000 11101110111000101001011001	DEC.	1111
NOV.		NOV.	111
OCT.	000 1 90 0 1 1 1 0 0 1 1 1 0 0 1 1 0 0 0 0	OCT.	1111
SEP.	7.2 00.00	SEP.	1111
AUG.		AUG.	0.0
JULY	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	JULY	0000
JUNE	6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.00	JUNE	0.011
MAY	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MAY	2.8
APR.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	APR.	0.0
MAR.	L 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MAR.	1111
FEB.		FEB.	1111
JAN.	0.000	JAN.	1111
NC	223.00000000000000000000000000000000000	NO	55.0 60.0 90.0
STATION	1000.00 1000.0	! H	60.0

NOV. DEC.
P. OCT.
AUG. SEP
JULY
JUNE
R. MAY
AR. APR
JAN. FEB. M

TABLE 4. (cont.)

Unidentified fish larva (cont.)

111411116000000101011110000011 STATION 103.0 1103.0 1105.0 1105.0 1107.0 1110.0 1110.0 1117.0 1117.0 1117.0 1118.5 1118.5 1118.5 1118.5 1119.0 1110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110.0 110

121.0 34.0														
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223.0 45.0	23		1		1.4	3.0					ı	51.8	ı	9°3
227.0 55.0	25	ی د	1	•	3.2	0.0		0.0			ı	ı	1	ı
227.0 55.0	23.		ı		0.0	0.0		0.0			ı	7.3	ı	2.2
227.0 56.0	23	, in	1		1.4			0.0		ı	ı	ı	1	ı
27.0 34.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	23	C	1	1	1.4			0.0	1	i	ı	ı	1	ı
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33.0 55.0	30.	0			3.2			0.0			ı	16.4	ı	0.0
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Summary of pooled occurrences of all larval fish taxa taken on CalCOFI surveys from 1951 to 1960. Taxa are listed in the same order as Table 4. 5. TABLE

Nаше 	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Albula vulpes Anguilliformes Erumeus acuminatus Opisthonema spp. Sardinops sagax Engraulidae Engraulis mordax Alepocephalidae Alepocephalidae Argentina sialis Argentina sialis Argentina sialis Argentina sialis Argentina sialis Argentina sialis Bathylagus milleri Bathylagus milleri Bathylagus spp. Bathylagus schmidti Leuroglossus schmidti Leurophyconeria lucetia Sternoptychidae Chauliodus macropus Stomias atriventer Myctophidae Aulopus spp. Scopelarchidae Aulopus spp. Lampanyctus spp. Lampanyctus spp. Lampanyctus spp. Lampanyctus spp. Lampanyctus spp. Lampanyctus regalis	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2	2 2 2 2 2 8 8 1 1 2 2 8 8 1 1 1 1 1 1 1	3 2 3 3 5 3 6 7 7 8 8 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	2 2 1 2 2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1 1 6 1 4 2 2 3 4 1 1 1 6 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	### ### ##############################	1 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	1 1 6 2 2 1 1 8 2 2 3 3 1 2 1 6 1 1 8 4 2 1 1 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Lampanyctus Iltteri	l	l	I	>	ν.	4	>	4	4	4

TABLE 5. (cont.)

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2 2

Хате	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Thunnus albacares Trichiuridae Sphyraena argentea Trichthys lockingtoni	23 14 125	31 16 139							61 74 9	
Peprilus simillimus Tetragonurus cuvieri Chiasmodontidae Uranoscopidae Pleuronectiformes		50 17 13 13	28 16 16	38 10 31 - 46	47 655 24 13	34 146 14 6	124 574 11 5	26 12 11		122 162 164 16
Sociations of the second of th	428	524	561	40 0	50 0	ω σ σ σ σ σ	00 77	0 0	40 40	− 10 m U1
		1 27	11124	347 189 4 57		207 106 - 34	191 208 16 44	136 180 16 33	134 118 20 20 32	101 117 14 39
Paralichthys spp. Paralichthys spp. Paralichthys californicus Syacium ovale Xystreurys liolepis Eopsetta jordani Glyptocephalus zachirus Hypsopsetta guttulata	188			14 1260101	22 2 2 1 4 1 5 1	1811531	30 6 7 11 1	1 4 8 8 2 1 4 E.	. w	30,000
Isopsetta isolepis Lyopsetta exilis Microstomus pacificus Parophrys vetulus Pleuronichthys spp. Pleuronichthys decurrens Pleuronichthys verticalis Psettichthys melanostictus Symphurus spp.	251 124 144 15131	330 330 330 44 50 70 70	100 100 100 100 100 100 100 100 100 100	116 17 17 18 11 11 2 31 35	2 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	174 188 132 133 144 1	000 000 000 000 000 000 000 000 000 00	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	200 200 200 73 73 75	1 4 3 2 3 2 3 2 4 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5
Tetraodontidae Disintegrated fish larva Unidentified fish larva	2 229 187	253 218	74 284	63	124 99	103	193 129	258 181	361	482 343

TABLE 6. List of stations with multiple occupancies in one month during 1953. Stations were occupied twice in one month except those indicated by an asterisk, which were occupied three times.

85.0 40.0 1 117.0 26.0 4 85.0 45.0 1 117.0 35.0 4 123.0 37.0 3 117.0 30.0 4 123.0 40.0 3 117.0 40.0 4 123.0 55.0 3 117.0 50.0 4 123.0 55.0 3 117.0 50.0 4 123.0 56.0 3 117.0 50.0 4 123.0 56.0 3 117.0 50.0 4 123.0 66.0 3 117.0 50.0 4 127.0 40.0 3 120.0 25.0 4 127.0 45.0 3 120.0 30.0 4 127.0 55.0 3 120.0 35.0 4 127.0 55.0 3 120.0 35.0 4 127.0 55.0 3 120.0 35.0 4 127.0 55.0 3 120.0 35.0 4	Stat	ion	Month	Statio	m Month
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123.0	85.0	45.0	1	117.0 3	5.0 4
123.0				117.0 3	0.0
123.0 45.0 3 117.0 45.0 4 123.0 55.0 3 117.0 55.0 4 123.0 55.0 3 117.0 55.0 4 123.0 60.0 3 117.0 60.0 4 127.0 34.0 3 117.0 70.0 4 127.0 40.0 3 120.0 25.0 4 127.0 55.0 3 120.0 35.0 4 127.0 55.0 3 120.0 35.0 4 127.0 55.0 3 120.0 35.0 4 127.0 60.0 3 120.0 35.0 4 127.0 60.0 3 120.0 45.0 4 130.0 30.0 3 120.0 45.0 4 130.0 35.0 3 120.0 55.0 4 130.0 40.0 3 120.0 55.0 4 130.0 50.0 3 120.0 60.0 4 130.0 50.0 3 120.0 60.0 4 130.0 50.0 3 120.0 55.0 4 130.0 50.0 3 120.0 55.0 5 133.0 30.0 3 120.0 80.0 4 130.0 50.0 3 120.0 80.0 5 133.0 35.0 3 83.0 48.0 5 133.0 35.0 3 83.0 48.0 5 133.0 35.0 3 83.0 51.0 5 133.0 35.0 3 83.0 60.0 5 133.0 40.0 3 83.0 60.0 5 133.0 40.0 3 85.0 3 85.0 39.0 5 133.0 35.0 3 85.0 39.0 5 137.0 30.0 3 85.0 50.0 5 137.0 35.0 3 85.0 40.0 5 137.0 35.0 3 85.0 45.0 5 137.0 35.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 40.0 3 87.0 45.0 5 137.0 45.0 4 87.0 50.0 5 85.0 40.0 4 87.0 50.0 5 85.0 40.0 4 87.0 50.0 7 113.0 30.0 4 85.0 50.0 7 113.0 30.0 4 85.0 50.0 7 113.0 30.0 4 87.0 45.0 7 113.0 30.0 4 87.0 45.0 7 113.0 30.0 4 87.0 45.0 7 113.0 30.0 4 87.0 45.0 7 113.0 30.0 4 87.0 45.0 7 113.0 30.0 4 87.0 45.0 7 113.0 45.0 4 87.0 45.0 7 113.0 45.0 4 87.0 45.0 7 113.0 55.0 4 8113.0 50.0 4			3		
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